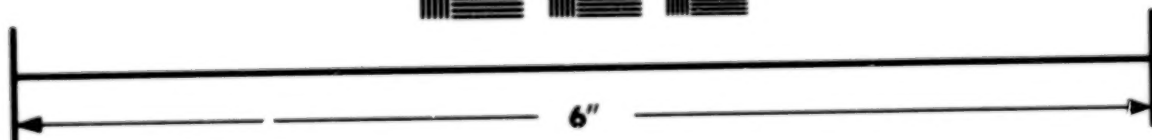
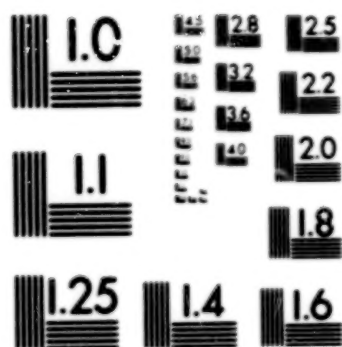




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JPRS 74322

5 October 1979

# USSR Report

INDUSTRIAL AFFAIRS

No. 508



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# USSR REPORT

## INDUSTRIAL AFFAIRS

No. 508

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## CONSTRUCTION, CONSTRUCTION MACHINERY AND BUILDING MATERIALS

### NEED FOR CONTROL ON URBAN DEVELOPMENT URGED

Moscow SOVETSKAYA KUL'TURA in Russian No 53, 3 Jul 79 p 6

[Article by Engr V. Mashinskiy: "A City Goes Beyond Its Limits"]

[Text] The rapid growth of cities is one of the characteristic traits of our times. In 1926, the USSR had 33 cities with a population over 100,000 persons, and now there are around 250 of them. Some 19 cities have crossed the million mark, and soon several others will join them.

However, it must be noted that the process of urbanization, along with the positive aspects, also has a number of negative ones. The concentration of industry and intensive motor vehicle traffic cause a tangible influence on the living conditions of the city dwellers. The suburban recreational zone is removed from the center of the city, and the inhabitants spend a lot of time traveling back and forth between their home and their job. In the giant cities, as statistics indicate, the birthrate declines, and the share of pension-age persons increases.

The broad scope of standard housing construction which accompanies the growth of cities has also given rise to the problem of the uniqueness of their development. Identical residential districts reduce the creative activeness of people. Thus the aesthetic categories turn out to be closely tied to the social ones. People are placing growing demands upon the planning of the districts, and they prefer to live in an attractive microrayon which is provided with schools, nurseries, stores and other cultural and service facilities. Also of important significance for the new settlers are the public amenities and landscaping of the territory in the microrayon, and the convenience of transport and pedestrian ties with the other parts of the city.

Even in the 1950's, Soviet architects worked out a system for the settling of urban residents in the microrayons and this provided a graduated system of services, and the bringing of stores and cultural and service enterprises closer to the housing. This system gained its practical embodiment during the construction of the ninth district of Cheremushki in Moscow, and had an

enormous impact upon all the subsequent urban development practices in our nation. Its basic principle was comprehensiveness of development.

However even now, 20 years later, the construction workers often "forget" about the principle of comprehensiveness, in delaying the construction of the planned schools, nurseries, stores and sports areas. The situation is even worse with the landscaping and public amenities for the territory. Each year in many cities tens of millions of rubles earmarked for landscaping and public works are not used by the construction workers.

It cannot be said that our construction workers do not understand the importance of comprehensive development. The highest directive documents and many conferences on different levels have pointed to the necessity of the early construction of roads, stores and cultural and service facilities. However the noble appeals too often hang in the air without influencing construction practices. It has become a lamentable rule that the inhabitants of the new rayons are forced to purchase daily products and goods in the center of the city, and each day bring them home in the overloaded public transport.

In some places in the urban planning bodies, local theories are even created on the necessity of the early construction of housing in comparison with all other elements of the microrayon. In the first years of construction, as a rule only 60 percent of the required capital investments is allocated for the construction of cultural and service facilities. But no matter how original the shapes of the buildings or in what colors their facades glisten, if the territory around them is not landscaped and does not have proper amenities, if there are no schools, nurseries and stores nearby, it is impossible to create conditions for a person for a full life in a modern rapidly growing city. Successful planning, skillful landscaping, and a high level of public amenities on the territory provide beauty and coziness to standard development. An example would be the town of Zelenograd near Moscow, the developers of which received the USSR State Prize.

Recently the opinion has spread that the "growth pains" of the large cities have been caused by the excessively rigid construction standards and rules which contradict the requirements of the further development of the city.

In what do the supporters of this viewpoint see the contradiction? First of all in the fact that the construction standards and rules have reduced the development density. In proof of this they point to the difficulties which arise in the growth of the territory of the largest cities. Such difficulties actually do exist. However the reason is in no way in the construction rules and standards, but rather in the lack of a modern concept for the development of the giant cities, and in the attempts to restrict their growth solely by administrative methods, without considering the economic factors which cause such growth.

A city is an economic and social organism which is linked by thousands of ties to the entire nation. For this reason the attempt to artificially or arbitrarily restrict its growth is certainly doomed to failure. The architectural bodies which work out the general plans endeavor to regulate the

development pace and nature of literally all the sectors of the national economy, thereby endeavoring to "encompass the unencompassable." Here the architects have a very tentative notion of the ways of development for one or another sector and the allocating of funds for capital construction and reconstruction. The inaccuracy of the forecasting leads to a situation where industrial projects are erected on a territory assigned for housing construction, and in turn, the development of the residential districts becomes more concentrated. And as a result there are fewer sports facilities and green areas available for the residents, and the sanitary and hygienic conditions of the urban environment deteriorate.

Thousands of new residents complain of the absence of greenery and sports areas in the microrayons and the unnecessary felling of green plantings. Things reach the point where on the territory of a microrayon at times no space remains for the children's playgrounds and sports grounds.

No, here it is not the standards that are to blame, but rather those who are unable to apply them in practice. The standards contain priceless experience. They help both the architect and the engineer not in inventing a bicycle, but rather to use the acquired achievements of architectural and engineering thought. A vivid example in this regard is the rayon of Lazdinay in Vil'nyus, the authors of which received the Lenin Prize. And we would particularly like to point out that it was built in accord with the accepted urban development standards, and not in spite of them.

Of course, the standards require correcting from time to time. But these changes should be aimed at improving the living conditions of the urban populace. It is now time to abandon the unrestrained rise in the development density and to work out new settlement systems which would make it possible to mitigate the negative aspects of the process of urban development. At present what we need is not to replace the urban development standards, but on the contrary, to create a special law on urban development which would be analogous to the current laws on natural conservation. This law should establish personal responsibility for the observance of the urban development standards, the actual realization of comprehensive development, and the creation of optimum conditions for the residence of the urban population. An urban development concept should be precisely formulated for the development of the cities, and maximum development densities should be established which would provide, on the one hand, for the effective use of urban territories, and on the other, high sanitation and hygiene indicators for the environment.

In the legislation it is essential to reinforce the notion that the existing green plantings and the territories allocated for them cannot serve as a reserve for the locating of housing, civil and industrial construction.

We should learn to control the growth of the large cities, we must learn to accurately and thoroughly forecast their future, and to draw up general plans on an economically sound basis, otherwise we must constantly in the midst of things correct the failings of our shortsightedness.

## CONSTRUCTION, CONSTRUCTION MACHINERY AND BUILDING MATERIALS

### USE OF PROGRESSIVE URBAN DEVELOPMENT WORK REVIEWED

Moscow ZHILISHCHNOYE STROITEL'STVO in Russian No 6, Jun 79 pp 2, 3

[Unattributed article: "Broad Introduction of Progressive Urban Development Methods"]

[Text] Comprehensive continuous planning and uninterrupted construction of housing and cultural-service projects in the cities of the RSFSR began to be introduced in 1973. The extension of this method into the cities intensified after the publishing in August 1974 of the Decree of the CPSU Central Committee "On the Experience of the Work of the Orlovskaya CPSU Obkom in Organizing the Rhythmical Completion of Housing and Civil Projects in Orel." In carrying out the decree of the CPSU Central Committee, the councils of ministers in the Union republics and the kray, oblast and city soviet executive committees carried out organizational work to prepare for the transition to the Orel "continuum" which is the basis for a further improvement and bettering of organization in housing and civil construction.

While in 1975 the Orel method was introduced in 20 administrative center cities, in 1976, the figure was 42, and in 1978, already 60 cities including the cities of Siberia and the Far East: Omsk, Kemerovo, Novosibirsk, Tomsk, Krasnoyarsk, Irkutsk, Ulan-Ude, Barnaul, Vladivostok, Khabarovsk, Blagoveshchensk, Petropavlovsk-Kamchatskiy, Magadan, Yuzhno-Sakhalinsk and Yakutsk. In these cities in 1978, 17.4 million m<sup>2</sup> of housing were put up and this was 91 percent of the total completion of housing for all the administrative center cities of the RSFSR.

In 1980, this method is to be introduced in all the administrative center cities and in a number of major industrial cities of the republic.

Where progressive methods have been introduced for the organization, comprehensive continuous planning and assembly-line construction of housing, cultural-service facilities and utilities, there has been a rise in the rhythmical completion in the housing and civil construction, and development of residential areas has been carried out more comprehensively. In a number of such cities, construction quality has improved. Over the past



5 years the RSFSR Gosstroy has carried out definite work to broadly introduce the Orel "continuum" into housing and civil construction in the RSFSR cities. The questions of introducing the Orel method have been repeatedly taken up at sessions of the Gosstroy and at traveling sessions of the Interdepartmental Coordinating Council under the RSFSR Gosstroy for Introducing the Orel Method into Construction. In 1978, the Interdepartmental Coordinating Council reviewed the state of introducing the Orel method in 54 cities which are administrative centers or large industrial centers of the RSFSR. Here two sessions of the council were held in Omsk and Khabarovsk where they examined in detail the questions of introducing the Orel "continuum" in 15 cities which are administrative centers and major industrial cities of Siberia and the Far East.

As a result of the work carried out, by 1979, in all the capitals of the autonomous republics and the kray and oblast centers, coordinating centers had been created for organizing and directing the construction of housing and civil projects using the Orel method and the corresponding measures had been worked out.

In the cities which have introduced the Orel "continuum" definite work has been done in the area of setting up the service of a single client, and single general contracting construction and design organizations. The providing of civil and housing construction in the administrative centers with design and estimate specifications have been entrusted to Grazhdanproyekt [Civil Design Institute], Siprogorssel'stroy [State Design Institute for Rural Settlement Construction] and Gorproyekt [City Soviet Planning Department].

While the concentration of capital investments on housing construction at the city executive committees in 1979 was 65 percent as a whole for the RSFSR, in a whole series of city executive committees this indicator was higher, including 93 percent in Leningrad and Murmansk, 85 percent in Tula, 83 percent in Moscow, 82 percent in Orel, 78 percent in Ryazan' and Khabarovsk, 77 percent in Barnaul, Bryansk, Tambov and Kaliningrad, and 75 percent in Penza.

A number of cities over the last 3 years (1976-1978) have achieved a steady fulfillment of the plan for completing the total area of housing, including Moscow, Leningrad, Orel, Murmansk, Naratov, Ozerilovsk, Kaluga, Yoshkar-Ola, Cheboksary, Yaroslavl', Khabarovsk, Tomsk and Yuzhno-Sakhalinsk.

In these cities there has been an improvement in the rhythmical completion of housing over the quarters of the year, the time for erecting the projects have been shortened and construction quality has risen. In many cities the concentrating of capital investments in one client has produced definite positive results. Thus, a single client, contractor and designer have been determined and this has made it possible to solve the comprehensive urban development problems more efficiently and effectively, as well as the questions of engineer support, the organization of construction in the city, the preparation of design and estimate specifications, a shortening of construction times and a rise in the steadiness of completion.

In a majority of the cities, as a result of the measures undertaken by the city executive committees, a reserve of technical specifications has been created and this ensures the organization of continuous construction for the civil and housing projects. A majority of the RSFSR cities are provided with technical specifications for 2 years. In Krasnoyarsk, Murmansk, Vladivostok, Barnaul, Kemerovo, Blagoveshchensk, Rostov, Rybinsk, Shakhty, Novosibirsk and a number of others, following the example of Yaroslavl', a "urban development contract" has been concluded and this brings together the efforts of the client, the designers, the construction workers, and the suppliers of building materials and structural elements on the question of comprehensive assembly-line construction for housing and civil projects.

The first stage of creating a unified single contracting organization is the successful carrying out of the construction and installation work for the administration (department) of capital construction at the city executive committee by one general contract and its organization of an assembly line in building the housing, the cultural and service facilities and the utilities.

However, housing and civil construction in many administrative center cities is still carried out by several general contracting organizations of different ministries and departments.

Thus, six contracting organizations carry out work for the UKS [capital construction administration] of the Ordzhonikidze city executive committee, four in Kal'chik, and over twenty in Krasnodar.

The creation of a single general contracting organization for the construction of housing and civil projects in the cities being built by main administrations and territorial construction administrations under the basic USSR construction ministries, even for a single client, is as yet being carried out unsatisfactorily.

The USSR construction ministries which are building up the cities have still not worked out a single rational scheme for the interaction of the general construction trusts and the DSK [housing construction combine] in the area of the functions assigned to them as the general contractor and a subcontracting organization.

One of the basic tasks in assembly-line housing construction is to provide for its rhythmical even completion over the quarters of the year and an improvement in work quality. The rhythmicalness has improved significantly among the cities which have introduced the Orel "continuum." In 1978, the best indicators for the rhythmical completion of housing were to be found in Moscow, Orel, Yaroslavl', Cheboksary and a number of others.

The quality of housing completed has risen in a majority of the cities which have introduced the Orel method. At the same time in many cities the quality of the housing is still insufficiently high and the number of satisfactory



estimates is still great and comprises from 40 to 60 percent. Among these cities are Bryansk, Ulan-Ude, Novgorod, Magadan, Vladivostok, and a number of others.

The positive experience of introducing the Orel method in Orel, Murmansk, Chetokary, Ryazan' and a number of others shows that its results depend largely upon the activities of the construction and installation contracting organizations.

However, it must be pointed out that the basic USSR construction ministries are insufficiently informed of the course of carrying out the housing and civil construction plans in the administrative center cities of Russia, and this reduces the influence of the ministries on their subsidiary organizations which are developing the cities.

In certain cities of the RSFSR, assembly-line construction of housing has not been properly organized. The city executive committees in these cities have still not achieved the required concentration of capital investments in the hands of a single client, they are slow in settling the questions of strengthening and improving the work of the capital construction administrations (departments) of the city executive committees and the institutes of Grazhdanproyekt, and permit the incomplete elaboration of technical specifications and do not determine jointly with the organizations of the construction ministries the single general contracting construction organizations.

Analysis of the course of introducing the Orel "continuum" in the administrative center cities and the large industrial cities of the RSFSR shows that it is essential to solve a number of questions for its extensive spread in construction. These include:

- 1) To work out 2-year plans for capital investments, construction-installation work, the completion of capacity and capital for the organizations and enterprises of the USSR ministries and departments, both those turning over capital investments to the single client, as well as those acting as an independent builder;
- 2) To coordinate the plan indicators for completing the capacity and capital of the soviet executive committees acting in the role of clients, and for the Union construction contractor ministries;
- 3) To allocate the necessary funds for a backlog of housing and civil construction;
- 4) To complete the creation of territorial construction-installation organizations which would be general contractors carrying out the annual program for housing and civil construction in accord with that established by the single client;
- 5) To improve the system of material and technical supply for the construction sites as well as the structure of the capital construction administrations (departments) under the soviet executive committees.

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## CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

### MOSCOW HOUSING CONSTRUCTION SITUATION DESCRIBED

Moscow MOSKOVSKAYA PRAVDA in Russian 3 Jul 79 p 2

[Interview with M. I. Zhuravlev, deputy head of the Moscow City Office of Stroybank, by N. Polezhayeva: "Faster Completion of Construction Projects"]

[Text] Raising the efficiency of utilization of capital investments is an important economic and social problem. In order to solve it, the number of projects under construction at the same time will have to be reduced so that the most important of them are put into service more quickly. For 2 years the indicator "commodity output" has been planned in Glavmosinzhstroy [Moscow City Main Administration of Construction of Engineering Installations], and settlement for the completed project has been adopted. The collective of the Moscow City Office of USSR Stroybank has taken an active part in the experiment. To be specific, a system of credit financing was worked out jointly with Mosgorplan [Moscow City Planning Commission] and GlavUKS [Moscow City Main Administration of Capital Construction]. Instead of the advances previously obtained from customers, all organizations of Glavmosinzhstroy--both general contractors and subcontractors--meet costs of unfinished construction with bank credit. The credit is extended for the period until projects are actually accepted. Interest is collected for use of the credit. Late acceptance of projects is immediately reflected in the economic condition of the construction organization. M. I. Zhuravlev, deputy head of the Moscow City Office of Stroybank, talks about the experiment's successes and problems in an interview with our correspondent.

Question: How is the new system of settlement helping to increase the efficiency of utilization of capital investments?

Answer: Before the transition was made to the new system, organizations of Glavmosinzhstroy completed 70 percent of their projects behind schedule, and now the proportion is less than 30 percent. Moreover, previously only 40 percent of the projects turned over for use were accepted without additional work. Now their number has doubled. In other words, the readiness of projects for use has increased considerably, the state obtains its return more quickly from the funds invested in construction.

Question: But the new system is still not a panacea for all ills. As is well known, Glavmosinzhstroy has still not succeeded in doing everything it intended.

Answer: Indeed, all the potential in the main administration has not yet been utilized. For example, the practice of crash efforts has not yet been eliminated. Delivery of projects for use is not uniformly distributed, but most are delivered in the third and fourth quarters. At the end of last year Glavmosinzhstroy delivered 46 percent of the annual volume of heating systems, 65 percent of the sewer mains, 35 percent of the storm drains, and 32 percent of the water supply systems. The result is that the quality of construction was not high enough, and the work was not altogether finished. The number of structures which after delivery still have to be worked on to put them in finished form has decreased considerably, but the goal is to eliminate them altogether.

Five trusts of the 22 in the main administration failed to fulfill last year's targets for completion of projects and for the rise of labor productivity. Seventeen administrations had losses.

There are internal reasons for this. The main administration is developing its own production facilities at an inadequate pace. Another bottleneck is the lack of power tools, which would make it possible to eliminate manual operations. The organizations of the main administration should be more energetic in adopting subcontracting by the work crew, which is a tried and true method for raising labor productivity.

At the same time, a number of the shortcomings which are hindering the main administration from working more efficiently, at a more uniform pace, and with a larger return, have to do with the fact that the new system of planning and settlement is not altogether in operation and will not be in operation until all sections of the construction conveyor are converted to it.

Question: It seems the problem is not so much achieving normal conditions for Glavmosinzhstroy, as achieving normal conditions in all main administrations. And the transition to the new system can change the situation with assimilation of capital investments, which at present is an unfavorable one in the city.

Answer: As a matter of fact, thousands of projects are at present under construction in the capital. Many construction sites have been put in mothballs, while others have been under way for 10 years or more.

Increasing the efficiency of capital investments is possible only when the number of projects simultaneously under construction is brought to the optimum level. It is not a question of building more projects, but of putting more into operation. And this is the principal role that should be played by Mosgorplan and GlavUKS.

After all, how is it that money and energies become scattered? Before any project is included in the plan, a thorough calculation must be made of every aspect: the need for materials, equipment and people. The site must be prepared, documentation must be furnished for the project, and financing must be provided. Only then should actual construction commence. Many of these functions are the functions of customers.

At present those divisions of GlavUKS which are responsible for the preparatory period in the case of utility construction are responsible for performance of their functions in connection with the experiments of Glavmosinzhstroy. If, say, they do not make the site available for construction on time, they pay a penalty. Financial liability imposes discipline. Those divisions working for Glavmosstroy [Moscow City Main Administration of Housing and Civil Construction] and Glavmospromstroy [Moscow City Main Administration of Industrial Construction] are not responsible for commodity output and therefore do not participate actively in planning capital investments. This year, for example, 700 apartment buildings are under construction in the city to be completed next year. Smaller capital investments are allocated for construction work to be completed in the future. In other words, protracted construction time is planned from the very outset.

Question: When the preparation was made for transition to the new system, GlavUKS and Mosgorplan reduced the number of projects simultaneously under construction in the program of Glavmosinzhstroy. Something like that obviously should also be done with other main administrations in the capital, their capabilities should be reckoned with, and construction of the optimum number of projects should be planned, the experiment demonstrates that the utilization of capital investments improves when planning is more precise and future-oriented.

Answer: This requires a transition to continuous planning over a period of 2 or 3 years or longer. The preparation for it has been going on for more than a year. But the work has not yet been completed.

Entire housing developments are being built in the city; these are one-of-a-kind projects whose construction time is several years. Only with continuous planning can the construction sites be furnished everything they need. Adoption of that kind of planning substantially facilitates the transition to the new system of settlement and as a result increases the efficiency of assimilation of capital investments.

Concentration of energies and money on the most important projects will also make it possible to solve another important problem--timely preparation

of project plans and the high quality of those plans. After all, at present the energies of project planners are also scattered. For that reason it has not been possible for Glavmosinzhstroy to complete this work for its projects, even operating under the new system. For instance, the administration for capital construction of roads, of bridges and overpasses, and of water and sewer systems have been late in furnishing the approved technical documentation for 50 projects amounting to about 10 million rubles in annual capital investments. Other construction organizations in the city are also obtaining full sets of drawings only with a long delay. As a result production programs for the year are approved for trusts and administrations in March or April, in the first quarter they are essentially working "in the dark," which delays the date when the projects actually go into service.

Question: The builders have given us a strange set of terms. What does it mean to say "actual" introduction into service? The operation of a project cannot be a formality; in that case it is not operation. Nevertheless, letters to the editor include quite a few from new tenants who write that the buildings in which they have received apartments were "put into service," but it was not possible to move in--all the work had not been done.

Answer: They only illustrate the situation of the bad situation in assimilation of capital investments, especially in Glavmosstroy--which is the principal builder of housing in the capital. For example, a third of the apartment buildings which the main administration included in its report for last year still stand empty. Two buildings which commissions accepted in 1977 are even vacant.

The situation in the main administration can be altered by the transition to the new system of planning and credit financing of construction in process. But for 3 years the main administration has been making preparations and has now decided to convert to the new system only one of its subdivisions--the association for large-panel housing construction. This step, of course, is no solution to the problem. We have seen that even when the main administration for construction of engineering installations makes the transition, the situation in the city as a whole changes little, and an association is just a drop in the bucket.

Question: There are many problems, and the new system of planning commodity output and settlement for the completed projects show them up more clearly. Is it possible for the experiment to spread further and develop unless they are solved?

Answer: It is true that the new comes into conflict with the old. And the issue is drawn--who will win? If the "gross output" is to yield to the physical indicator, we cannot look for detours. But such detours exist. For instance, Glavmosinzhstroy is unable to solve many problems and is therefore attempting to juggle things, to make changes in its program--to carry over completion of projects planned for delivery in the second quarter



to the end of the year. But it is now that the weather conditions are favorable to construction workers.

In short, if the system is to work, we cannot skirt around the problems. They have to be solved.

I emphasize once again that all participants in the construction process must give up "gross output" and adopt the physical indicator--commodity output. The delivery of projects for service without additional work should become the principal result of the activity of construction workers.

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## CONSTRUCTION, CONSTRUCTION MACHINERY AND BUILDING MATERIALS

### CONSTRUCTION INDUSTRY URGED TO ACCELERATE TECHNICAL PROGRESS

Moscow STROITEL'NAYA GAZETA in Russian 3 Aug 79 pp 1-2

[Article by I. T. Novikov, deputy chairman of the USSR Council of Ministers and chairman of USSR Gosstroy: "Responsibility for Technical Progress"]

[Text] Under the leadership of the Communist Party the Soviet people have made remarkable advances in economic, scientific, and cultural development and carrying out the historic decisions of the 25th CPSU Congress. Our country today has enormous scientific-technical potential and politically mature, highly skilled cadres who have accumulated broad experience in socialist building. We have everything necessary to continue our advance toward communism.

Capital construction, which employs about 11 million persons, has an important role in development of the national economy, of course. Workers of the sector are making a large contribution to building the material-technical base of developed socialism. Thanks to their heroic efforts the national economy now has fixed productive capital worth 1 trillion rubles, which illustrates the enormous potential of the Soviet economy. During the 10th Five-Year Plan construction workers have launched more than 700 large enterprises. Among them are the first phase of the Kama Truck Plant, the Neftekamsk Dump Truck Plant, the blast furnace at the Novolipetsk Metallurgical Plant, the country's largest complex for production of acrylic acid nitrile in Saratov, the unique Il'ichevsk-Varna ferry crossing, and many others.

Housing and cultural-domestic construction has developed broadly. About 20 new cities appear on the map of the country each year and more than 40,000 apartments are turned over for use each week.

The progressive practices of Soviet construction workers are known far beyond Soviet borders. They have become the property of many countries, above all the members of CEMA.

At the same time, it is also common knowledge that the enormous army of construction workers could achieve even greater successes. But they

have not done so for various reasons. The principal reasons come down to the fact that reserves for raising labor productivity are not adequately used. Let me recall that this is the factor which accounts for the primary increase in the country's national income and creates real possibilities of improving living conditions. The full growth in volume of construction and installation work in this five-year plan is to be achieved through rational, economical use of labor resources.

Despite the special importance of raising labor productivity, many collectives are not meeting this challenge. This is primarily because they still fail to give proper attention to accelerating scientific-technical progress. It is only on the basis of accelerated development of science and technology, however, that the final goals of the social revolution can be achieved and a communist society built.

This is precisely the goal set by the CPSU Central Committee and USSR Council of Ministers decree entitled "Improving Planning and Bolstering the Effect of the Economic Mechanism to Increase the Efficiency of Production and Quality of Work." It points out ways to achieve these objectives: strive for rational use of everything we have in our economy and our sector; rely primarily on intensive growth factors; concentrate resources on the performance of national target programs; introduce scientific and technical advances and progressive practices into production more broadly. To increase the efficiency of capital investment it is important not just to improve planning but also to strengthen the role of economic accountability, levers, and stimuli.

When speaking of stepping up technical progress, we should have in mind primarily broad use in construction of the advances of science and technology in all its branches by improving the quality of planning decisions, raising the level of industrialization, increasing the reliability and longevity of buildings and structures, reducing their weight, and devising new, efficient construction design elements, articles, and materials. "Practical introduction of new scientific ideas," L. I. Brezhnev said at the 25th party congress, "is just as important a job today as developing these ideas."

Of course, introduction is a complex process. But the difficulties should not cool the creative ardor of innovators. The socialist economic system makes it possible to coordinate and unite the actions of everyone taking part in practical implementation of the concepts of scientists and inventors and to plan the introduction of comprehensive developments with due regard for sectorial, intersectorial, and regional interests and for accelerated development of the CEMA countries.

Our construction workers have an enormous arsenal of proven scientific-technical means: thousands of inventions, major planning and design developments, and efficiency proposals from scientists. Among the efficient innovations are sets of machines, automatic devices, and mechanisms, production lines and processes, equipment, designs and materials, and new forms and methods of organizing and controlling



construction. We must ask why are all these progressive developments not moving rapidly into practical use?

One of the primary reasons is that the ministries and departments do not take a properly responsible attitude toward the introduction of new technology and try to plan small volumes of work. Moreover, they do not even fulfill these fairly easy plans. For example, organizations of the USSR Ministry of Construction fulfilled only half of their assignments last year. The USSR Ministry of Construction of Heavy Industry Enterprises, the USSR Ministry of Industrial Construction, the USSR Ministry of Rural Construction, the Ministry of Transport Construction, and others must do better work on introduction of new technology.

Many construction sites are going slowly on questions of technical progress in the field of production technology and organization of work and progressive work methods such as consolidation of design elements and rigging them up before installation; installation by modules, "wall in the ground," and others are not disseminated well either.

The ministries and departments of the sector must work harder to plan and organize the introduction of new technology and solve the problems of mechanizing and automating labor processes together. The effect of new technology and the real benefit from using innovations should be reflected in the plans of construction organizations and enterprises of the construction industry. Their managers and collectives must confidently figure on this reserve when fulfilling assignments for raising labor productivity. The list of innovations being introduced must be expanded, devoting special attention to those which permit the greatest improvements in production and increase in production efficiency. In this important work the role of the technical services of ministries and departments and the large detachment of specialists at institutes and Orgtekhstroy [possible Construction Technology Organization] trusts should be substantially enlarged. Their help is needed primarily for improvement of the organization and technology of construction work, broad introduction of technical advances, and providing construction sites with economical work plans.

There are enormous reserves for raising labor productivity in another direction as well: increasing the volume of introduction of innovations. At the present time, design elements of light concrete with porous aggregates are being introduced on a very moderate scale even though the use of 1 million cubic meters of such articles allows a savings of 300,000 worker-days at construction sites, lowers steel consumption by approximately 5,000 tons, and lightens the weight of buildings and structures by 800,000 tons. Construction projects make little use of reinforced concrete pressure pipes, prestressed reinforced concrete design elements, efficient dividing elements, new means of mechanization and automation, economical materials (high-grade cement, dry plaster), coated rubberoid, multicolored ceramic materials, and others.

The assignments set by ministries and departments for introduction of new technology must be considered minimum assignments and, without question, they should be fulfilled and overfulfilled.

Work is now being completed on writing draft plans for the development of science and technology in 1980 and the program of projects for the 11th Five-Year Plan is being prepared. It is important in this to substantiate the assignments being drawn up, determine concrete steps to insure their fulfillment, establish exactly who is responsible for what, and arrange in advance for constant, systematic checks. The inspection of performance is a good way to instill a conscientious attitude toward labor. During preparation of draft plans fuller consideration must be given to results of international scientific-technical cooperation. We must make broader use of the construction know-how being employed by foreign companies in our country.

Planning workers should promote accelerated scientific-technical progress vigorously. Each plan should contain an up-to-date technical basis and envision rational use of labor and material resources. Many institutes are attempting to publish such material for construction sites. Among these institutes are Promstroyproyekt [State Planning Institute for General Construction and Sanitary-Engineering Planning of Industrial Enterprises], Teploproyekt [All-Union Scientific Research and Planning Institute for Heat Engineering Structures], Rostov Promstroyniiproyekt [expansion unknown], and TsNIIEP [Central Scientific Research Institute of Experimental Planning] of Engineering Equipment, and others. But there are numerous planning organizations which cannot be said to be doing everything possible to accelerate scientific-technical progress. There is nothing really new in various plans produced by the Tula Division of Energoset'proyekt [All-Union State Planning, Surveying, and Scientific Research Institute of Power Systems and Electric Power Networks] of the USSR Ministry of Power and Electrification, the Voronezh Promzernoprojekt [State Institute for Planning Flour Milling and Groats Enterprises, Elevators, and Storage Facilities] of the USSR Ministry of Procurements, Tsentroenergochermet [possibly State All-Union Institute for Planning Power and Ferrous Metallurgical Enterprises] of the USSR Ministry of Ferrous Metallurgy, and others.

This situation cannot be tolerated. We must suppose that the ministries and departments will thoroughly analyze the activity of subordinate organizations and take steps that make it possible to raise the quality of plans and their technical-economic level.

The significance of development of the construction industry for accelerating scientific-technical progress is well-known. In recent years many new materials, articles, and design elements have been brought into production, making it possible to raise the technical level of the sector and of the fixed capital being launched in operation.

However, work to introduce innovations at enterprises of the construction industry is still going poorly. The process is considerably retarded by

the existing system of planning and evaluating the activity of enterprises. It does not always give workers sufficient incentive to produce the most economical and least materials-intensive design elements and articles. In this connection interesting experience has been accumulated by Glavmospromstroyaterialy [Main Administration of the Building Materials and Construction Parts Industry of the Moscow City Executive Committee] and certain enterprises of the USSR Ministry of Industrial Construction, the USSR Ministry of Construction, and the USSR Ministry of Power and Electrification. For several years running they have planned and evaluated activity on the basis of new indexes: net (normative) output and provisional physical measures. The results show that the new system of planning practically precludes any enterprise interest in producing traditional, non-progressive output.

It is time for the USSR Ministry of the Construction Material Industry and the construction ministries and departments to take more decisive and effective steps toward broad dissemination of this valuable know-how, especially because its introduction is envisioned by the decree of the CPSU Central Committee and USSR Council of Ministers on refinement of the economic mechanism.

We have no right to tolerate cases where certain leaders of institutes, organizations, and enterprises and leading specialists fight for progress in words only, while in fact they shun it and hold blindly to the old, the customary. We must not accept any manifestations of routine and backward practices. At the meetings now being held on further improvement of ideological and political indoctrination work it is correct to criticize workers who do not use every opportunity to accelerate scientific-technical progress and who, ultimately, are holding the entire cause back. Real support for progress means to remove all obstacles in its path.

A second, equally important challenge in accelerating scientific-technical progress is to increase the efficiency, the practical return from scientific research. There are many unresolved problems in construction. Improvements are needed in methods of calculating and designing buildings and structures, the development of new materials, articles, and design elements, highly productive machines, equipment, and tools, more carefully thought-out planning and development of cities and populated points, scientifically substantiated siting of industrial facilities and groups of enterprises, erecting projects quickly in difficult natural and climatic conditions, improving environmental protection, and others.

We cannot say that no one is working on these problems. Work is being done, but it is not purposeful enough. It is not the right kind of work. For example, VNIIProyektasbestotsement [All-Union Scientific Research and Planning Institute of the Asbestos Cement Article Industry] has been developing technology for a nonferrous silicate coating of asbestos cement sheets for about five years, but still has not solved this problem. Many other collectives and specialists are doing unproductive research also. For example, VNIPI Truda [All-Union Scientific

and Planning Institute of Labor and Construction] and NIIES [Scientific Research Institute of Construction Economics] of USSR Gosstroy are still not doing much work on questions of economizing on labor expenditures and material resources. But we have a right to expect that these institutes will produce important proposals on how to fulfill assignments for raising labor productivity.

The ministries and departments should thoroughly study the essential features of shortcomings in the work of their scientific research organizations and take steps to resolve the problems raised in practice as quickly as possible and increase the contribution of scientists to the development of all capital construction. The material incentive for specialists at scientific research institutes should be directly dependent on the efficiency and quality of their work.

The resolutions of the 25th party congress say that to raise research efficiency scientists must concentrate their attention on the key scientific problems, on devising fundamentally new machinery and technology which will bring about a basic improvement in production. The chief areas of research should be approached with comprehensive target programs that envision the full cycle of jobs from the idea to practical implementation and take into account the immediate and more remote prospects for development of the sector and the entire national economy. This is the procedure outlined by the well-known 29 July 1978 decree of the CPSU Central Committee and USSR Council of Ministers on further development of sectorial science.

I do not think there is any need to convince readers that the final part of research studies is very important. Quick, skillful testing of samples of the machinery being developed under production laboratory conditions and checks on the quality and efficiency of design concepts and materials largely determine the fate of innovations and the time when they will be introduced. Despite the perfectly obvious importance of experimental work, many ministries and departments underestimate, undertake it unwillingly, and if they do start work on a project, frequently they work in an unhurried, catch-as-catch-can manner, and thus nullify the goal of the research.

Some organization and enterprise managers believe that the main thing for them is to insure fulfillment of production plans and that experimental projects are a secondary matter. This is incorrect. We cannot live entirely by today's current problems with no regard for the scientific-technical backlog necessary to raise labor efficiency and renew production capacities on a new technical basis. The indexes of experimental construction will now be one of the primary indexes in the activity of ministries and contracting organizations and they should be held strictly responsible for failure on these assignments.

A great deal remains to be done to improve propaganda for scientific-technical advances. We have great opportunities for this. Each year the country's leading exhibit, the Exhibition of the Achievements of the USSR National Economy, features about 10,000 displays of interest to construction workers. Seminars and schools of



progressive know-how are conducted on the basis of topical exhibits. Republic economic exhibitions do a great deal of work to propagandize new things. The sectorial press elucidates scientific and technical advances in STROITEL'NAYA GAZETA, roughly 30 specialized and reference journals, and more than 200 large-circulation newspapers. TsINIS [Central Institute of Scientific Information on Construction and Architecture] of USSR Gosstroy and the organizations of other departments publish many informational pamphlets.

Nonetheless, existing opportunities to improve propaganda for scientific and technical advances and progressive know-how are not being used to the full. We must show the successes of innovators more broadly and intelligently, elucidate the progressive practices of particular workers and entire labor collectives in a more lively and interesting manner, arouse the interests of millions of workers with publications and exhibits, help them orient themselves in the search for the best creative solution, and vigorously promote the introduction of progressive development. It should be remembered here that concrete, business-like propaganda must be closely integrated with life itself and with work to accomplish economic and political tasks.

We have many ways to accelerate scientific-technical progress, but one of them is properly considered the chief means, the one that encompasses all the others. I have in mind the development of mass creativity, instilling a feeling for the new and progressive. This has, incidentally, always been inherent in the revolutionary transforming activity of our party.

"We are a party of innovators," V. I. Lenin said with pride. These words have been confirmed by the entire experience of building socialism and communism. They resound in the current phase of development of our society. The CPSU Central Committee decree entitled "Further Improvement of Ideological and Political Indoctrination Work" calls for the entire struggle to carry out the constructive program outlined by the party to be permeated with a spirit of creative searching and for every working day to be filled with examples of innovation and high responsibility for accelerating scientific-technical progress.

To instill a feeling for new things means to find concrete methods that make it possible to receive a high return with minimum expenditures. This also means the ability to work persistently to overcome everything that is obsolete and outdated and, when necessary, to take a justified risk and experiment in order to establish what is new and progressive. This is how they work, for example, at TsNIIProyektstal'konstruktsiya [Central Order of the Labor Red Banner Scientific Research and Planning Institute of Metal Construction Design Elements], TsNIISK [Order of the Labor Red Banner Central Scientific Research Institute of Construction Design Elements] imeni Kucherenko, and other institutes. Bold creative searching, persistence, and purposefulness must be supported and developed by every means.

I wish the ranks of the enormous army of construction workers had more fighters for scientific-technical progress, persons striving to achieve a radical improvement in forms and methods of work, technology, organization, and management and to insure consistent growth in production efficiency. It is very important to involve the masses of ordinary workers in scientific searching and purposeful creative activity. Favorable conditions for this must be created. But is there an atmosphere of mutual support, fruitful debate, and high standards at every scientific or planning institute and at every production organization. An improvement in mutual relations among workers is needed at TsNIPIASS [Central Scientific Research and Planning-Experimental Institute of Automated Systems and Construction], TsNIOMTP [Central Scientific Research and Planning-Experimental Institute of Organization, Mechanization, and Technical Assistance to Construction], and certain other institutes. We cannot expect a maximum return from research if there is an abnormal climate in the collective and the atmosphere is unsuited for creative work.

We know very well that socialist competition acts as the source of labor enthusiasm, the development of collectivism, and creative mutual help and cooperation. Not only is it a powerful impetus to solve the economic problem, but also it is an important means to communist indoctrination of the masses. Many participants in socialist competition may take pride in their labor successes. For example, the collective of TsNIIProyektstal'konstruktsiya, TsNIIPromzdaniy [Central Scientific Research and Planning-Experimental Institute of Industrial Buildings and Structures], Goskhimproyekt [State All-Union Institute for Planning Special Structures, Buildings, and Sanitary-Engineering and Power Installations for Chemical Industry Enterprises], NIIZhB [Scientific Research Institute of Concrete and Reinforced Concrete], NIIOSP [Order of the Labor Red Banner Scientific Research Institute of Foundations and Underground Structures] imeni Gersevanov, Khar'kov Promstroyniproyekt, TsNIIEP of trade-domestic buildings and tourist complexes, and TsNIIEP of Housing are successfully fulfilling and overfulfilling their socialist obligations for economical use of metal thanks to the use of progressive concepts in their plans. But there are also institutes which have nothing to brag about. The fault for this lies with the directors of the institute, who were unable, working with public organization to create the necessary conditions for competitors. This situation must be corrected.

Successful fulfillment of the glorious program of constructive work outlined by the 25th party congress demands active participation by the collectives of scientific research institutes, planning institutes, and production organizations, economic managers, and party, trade union, and Komsomol organizations in accelerating scientific-technical progress as the decisive condition for raising efficiency of capital construction.

There is every reason to believe that the workers of our sector, boldly and determinedly laying a path toward that which is new and progressive, will achieve an increase in the rate of scientific-technical progress and thus help build the might of our country and promote the great cause of communist building.

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## CONSTRUCTION, CONSTRUCTION MACHINERY AND BUILDING MATERIALS

### UNDERSTATED CONSTRUCTION ESTIMATES, PLANNING ERRORS DISCUSSED

Moscow PRAVDA in Russian 27 Jun 79 p 2

[Article by V. Shavlyuk, candidate of economic sciences: "Why Is Construction Becoming More Expensive?"]

[Text] Last year establishments of USSR Stroybank revised the estimates for more than 1,500 construction sites. The overexpenditure was 4.5 billion rubles, one-third of their initial cost. We should observe that it is usually large projects that are subjected to review. As a rule, they cost the state more than planned. Why is this?

Everything begins in the early stages of calculating the need for capital investment, planning, and material-technical supply. It has become the rule that to complete a construction project one must allocate considerable additional capital and resources, postpone the introduction of capacities, and look for ways to make up the shortage of output at other enterprises. Therefore, the problem of stabilization of estimates and improving their reliability is becoming very important for the national economy.

Everyone knows that it is useful to revise documents when it leads to a growth in production efficiency or better technical-economic indexes. But this is not always the case in practice. For example, last year indexes became worse at almost half of the construction sites that were reviewed. These projects account for more than 35 percent of the entire rise in cost. A significant amount, 900 million rubles, is going to correct planning decisions containing mistakes and to refine working drawings.

It is notable that plan revision occurs chiefly at construction sites where work has been going on for a long time. The Yurga Abrasive Plant in Kemerovskaya Oblast may serve as an example. This enterprise was planned by the Leningrad Division of Giprostanok [State Institute for the Planning of Machine Tool, Tool and Abrasive Plants and Forge-and-Press Machinery Plants] way back in 1963. The estimated cost of construction was 38.7 million rubles. Three reviews of the plan have been commissioned by the Ministry of the Machine Tool and Tool Building Industry and the estimated cost has been raised to



104 million rubles. The period of work on the plant had passed 15 years when the most recent documents were ratified. And there is no assurance that another ratification of the plan will not be needed in the future. Thus, the production of abrasive discs and tools at the Yurga plant has become a lengthy saga whose end is not yet in sight. The mistakes and omissions of the planners had a very detrimental effect on certain technical-economic indexes of the enterprise. The cost rose almost 17 million rubles through their fault alone.

The reason for such omissions in documentation is that planners working on complex projects do not always develop different variations in order to select the best one. For example, the plan of the Soligorsk Potassium Combine in Belorussia, which was proposed by Gosgorkhimproyekt [State All-Union Institute for Planning Enterprises of the Chemical Raw Materials Mining Industry], was significantly altered later. This fundamentally changed the character of production and the basic technical-economic indexes. The cost of building the combine rose immediately by 150 million rubles. The capacity of the enterprise increased 14 percent in the new variation. Only about one-third of the total rise in cost resulted from objective factors, the rise in prices for equipment. The entire remainder resulted from elimination of simple mistakes by planners and the lack of essential alternative variations. It is not difficult to observe how highly colored the technical-economic indexes of the earlier plan were when they proved to be lower in the new, improved variation.

It would apparently be advisable with complex projects to set up the development of several variations of the basic plan decisions and choose the best one without waiting, as is now done, for corresponding assignments from the customers. It is important that the prices for document development and planned cost take account of these alternative variations. Such an approach will facilitate the introduction of the best decisions in construction and reduce subsequent revision of plans demanded by expert or coordinating bodies.

We cannot overlook one of the most widespread causes of repeated ratification of plans and estimates. This means those construction projects whose estimated cost in the initial stage is artificially lowered to the point where it can be ratified in the local area without referring to USSR bodies. This is the reason for the vigorous activity in estimated costs up to 3 million rubles; beyond this point an estimate must be ratified at the USSR ministry or department. Customers and planning organizations use every kind of trick to squeeze the estimated cost under 3 million, and at the same time to embellish the technical-economic indexes. Sometimes they use flagrantly improper methods such as dividing a project into parts, each of which is supposedly independent, assigning the extra expenditures to non-existent shareholders, or reducing equipment costs because equipment is usually needed in the concluding stage of work. They do not think of the consequences, even less of their responsibility. They get away with it because of statutes of limitations.

After a vague estimate ratified in this way is included in the list of authorized construction projects, sooner or later it will be necessary to take out the map, ratify it again, and bring out the real cost. Earlier calculations and contracts concluded must be amended. If this causes a decrease in the technical-economic indexes of the projects, and they are almost always worse after such changes, then the consent of USSR Gosplan and Gosstroy must be obtained before continuing work. This is the point at which one would expect the guilty parties to receive punishment for violations of plan and estimate discipline. But practically nothing happens; consent is often given without objection and it does not play its proper preventive role.

We will give just one example. The actual cost of building the production wing of Sibgipromes [Siberian State Institute for the Planning of Metallurgical Plants] in Kemerovo was set by Siberian Promstroyproyekt [Siberian Planning Institute for General Construction and Sanitary Engineering Planning of Industrial Enterprises] at 5.2 million rubles. When the plan was ratified by the USSR Ministry of Ferrous Metallurgy it had been squeezed under the 2.5 million ruble limit existing at that time. When Promstroyproyekt objected Glavproyekt [Main Administration of the Planning Organizations] responded in an original manner: they turned further planning over to a subordinate organization, Sibgipromes, which was also the customer. They made no objection, of course. And only last year, when the project had been underway for seven years (the norm is three years) did the ministry, with the consent of USSR Gosplan and Gosstroy, ratify the plan again. The total rose to 5.8 million rubles.

For their part, the proposals of construction workers are plainly oriented to the use of more expensive materials, design elements, and work methods. After all, every savings achieved is put at their disposal. Comrade L. I. Brezhnev correctly pointed out this problem at the July 1978 Plenum of the CPSU Central Committee. Referring to the fact that there are serious omissions in the planning of rural construction projects, he related that this is significantly reducing the efficiency of capital investment. The current system for economic stimulation and evaluating the work of construction and planning workers has a negative effect. It encourages them to raise, not lower, the estimated cost of projects and to use expensive materials and elements.

As a result, estimates are bloated and lead to an unfounded rise in the price of construction. In the Ninth Five-Year Plan and the first three years of the Third Five-Year Plan alone selective audits by establishments of USSR Stroybank have led to proposals to reduce estimated cost of construction by almost 9 billion rubles. Planning organizations are completely unable to handle the production of technical designs and determine the real cost of projects under construction. Their role has plainly been diminished. Contracting organizations often have the decisive influence here. USSR Gosstroy and the ministries and departments should draw conclusions from this criticism for the development of norm documents.

The examples cited above also testify to the low level of work by expert examining commissions, especially departmental ones that are subordinate to the ratifying bodies. The time has come to form a single USSR-republic extradepartmental body with appropriate sectorial subdivisions on the basis of Glavgosekspertiza [possibly Main Administration of State Expert Examining Commissions] of USSR Gosstroy and its numerous subdivisions in the ministries and departments. This would make possible to raise the level of plans, follow a uniform technical policy, and root out narrow departmentalism. The main thing is that it would effect a realistic determination of the estimated cost of construction.

It appears that it would be advisable to combine a review of the structure of expert examining commissions with economic steps. Above all the bonus system should be modified because the existing system cannot be used as a lever to eliminate the shortcomings discussed above. Other normative documents also need improvement.

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## CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

### KHOZRASCHET AS SOLUTION TO CONSTRUCTION PROBLEMS

Moscow KHOZYAYSTVO I PRAVO in Russian No 6, Jun 79 pp 26-29

[Article by S. Volkov, journalist: "From Experiment to Economic Practice: The System for Organization of Capital Construction Is Improving"]

[Text] "Partial completion." It is given various names: unfinished construction--this is from the customer's viewpoint, and unfinished execution of construction and installation work--this is from the contractor's viewpoint. But however it is called, "partial completion" has been and remains one of the greatest ills of the national economy. Especially when it exceeds the allowance. Perhaps as an economic phenomenon it would be apt to compare it with a man's obesity, from which there is no benefit. And indeed, is there much benefit from buildings that stand like empty boxes which have not been "filled" with operating machines and machine tools, from the manufacturing equipment that has long been registered in the warehouse, from the untenanted apartment houses, from stores which stand empty, and so on? This is frozen capital which not only has not become part of the productive forces, but is even causing direct losses.

The volume of unfinished construction is growing every year, and it is now coming close to the average annual volume of capital investments. According to a remark made by Comrade L. I. Brezhnev at the November (1978) Plenum of the CPSU Central Committee, uninstalled equipment alone, piled up in warehouses, represents several billion rubles.

And how are the builders getting along? Not bad, on the whole.

It is nothing uncommon for a construction organization to deliver the next stage of construction and installation work ahead of schedule. The plan is overfulfilled. This stage is taken from the balance sheet of the contractor and transferred to the customer, it is added into "gross output" and to the volume of capital investments. And then what? Well, nothing, because completion of a stage does not at all mean that a shop or enterprise is ready to manufacture products. For this to happen the construction of entire projects bound together by the technological chain must be completed.

Another situation. The shelves of shop buildings were quickly erected. The construction workers produced their "gross output." But nothing was installed because the manufacturing equipment was still at supplier plants. The "boxes" stand empty until better times.

This is how "unfinished construction" comes about. Its growth is predetermined by the imperfect nature of the system of economic indicators, which do not unify in a single whole the interests of the state and the interests of each construction organization taken individually.

"Managerial and above all planning activity," Comrade L. I. Brezhnev said at the 25th CPSU Congress, "should be oriented toward the final results of the national economy. This approach is becoming especially relevant as the economy grows and becomes more complicated, when these final results depend more and more on the great number of intermediate links, on the complicated system of relations within and among sectors and industries. Under such conditions it is easy to overlook the main thing--the final results--in the drive for intermediate results, which in and of themselves still do not do the job.

So the key to solving the problem is the orientation toward the final results! From the construction industry's standpoint this means carrying out reconstruction projects and building enterprises and cultural and everyday-service facilities in a short time and at a high level of quality. Its task is to achieve a maximum reduction of the difference between the gross volume of capital investments and the volume of fixed capital put into service.

How is this task to be performed? This end is served by the effective new method of economic activity which is now evolving in the Belorussian Ministry of Industrial Construction, the Lithuanian Ministry of Construction and other organizations (10 in all). The method has come to be called the Belorussian experiment, since it began in Belorussia.

Its general formula is this: economic accountability for the ministry. Profit from delivery of finished projects has become the sole source of financial solvency. The principal indicator used in planning and recordkeeping is commodity output of construction. Settlement between the customer and the contractor is made only for projects, enterprises, complexes and phases of them which are entirely finished and delivered. The so-called "stages" have been abolished. In releasing earnings the bank takes into account only work in terms of finished output, and it takes "partial completion" (there inevitably must be some of this, otherwise there would not be the necessary spadework for the future) only up to the standard allowance.

The subjects of the experiment have been put on a system of full credit financing of construction. The contractor receives a loan from Stroybank for construction of the project, and he pays it off after completing construction



and receiving money from the customer. The fundamental principle adopted for both contractors and customers is continuous 2-year planning of the delivery of projects and capacities. Moreover, the sum total of the commodity plans of customers must equal the contractor's plan.

One very important factor is that the contractor has the right to distribute the volume of work by years. This makes it possible to achieve technological consistency in production, to work at an even pace and to make efficient use of manpower and material resources.

The 3-year experiment in the Belorussian Ministry of Industrial Construction provides convincing evidence that the method tested is reliable and promising. In that time the ministry produced finished construction output in the amount of 2.5 billion rubles, and the average annual growth was 10 percent. Partial completion of construction and installation work was brought within the allowance (78 percent). Construction time was reduced 14 percent.

Conclusion: indicators reflecting efficiency from the standpoint of the national economy are good--in any case there has never been anything better.

Now let us see what the construction industry has obtained. Alas! We must admit that it is little. Economic incentive funds have increased just barely--and that is all. At the same time the ministry was deprived of 41 million rubles of working capital in the 3 years, which was manifested in its difficult financial situation. Incidentally, this had never been the case before the experiment began.

Here are the elements of which the losses consist. The higher charge on bank credit "ate up" 11 million rubles. Another 20 million rubles of profit were never realized because the ministry could not altogether handle the volume of work to be done by its own resources. The plan for commodity output, which was unfulfilled by 112 million rubles, made a "hole" of 10 million rubles in working capital.

The ministry also had to carry on its own capital construction, develop utilities and municipal services, maintain its housing stock and children's institutions, and so on. All of this was financed from working capital because there were no other sources.

The idea of organically combining the interests of the state and the construction industry was set forth in the instruction on conducting the Belorussian experiment, which had the force of a directive. What is the reason for these shortcomings? The "godparents" of the Belorussian experiment--USSR Gosplan, USSR Gossnab, USSR Gosstroy, USSR Central Statistical Administration, USSR Gosbank, USSR Stroybank and other central departments unfortunately did not fulfill all the conditions stipulated in the regulation on conducting the experiment. Even as the reorganization was being carried out oversights were discovered in the procedural methods, so that we can

say that the experiment was not fully prepared. V. Tsybul'skiy, chief of the Main Economic Planning Administration of the Belorussian Ministry of Industrial Construction, aptly described the beginning of the experiment as the launching of a spacecraft from an old wagon. In many respects he was right.

The regulation stated that the basis for planning the production and economic activity of the Belorussian Ministry of Industrial Construction would be the 5-year plan (with a breakdown of the volume by years) approved in the regular way. Gosplan staff members are today forced to admit that the Belorussian construction workers still do not have a 5-year plan (which is true also of other participants in the experiment). And it seems that they will not have one. The draft of the plan has lain unexamined for 1.5 years somewhere in the bowels of Gosplan.

Of course, we might here refer to objective conditions "in breaking down" the 5-year plan (redistributing the capital investments), but this makes it no easier for the construction people.

Yet another essential condition was not fulfilled--the required continuous 2-year planning of the completion of capacities and projects. To some extent the builders themselves are to blame: they did not show enough persistence and did not work actively enough with customers. But the main reason should again be sought in USSR Gosplan. Much is probably explained by the position taken by A. Bogatyrev, a responsible official in the union planning agency, which he expressed at one of the conferences:

"I make no secret that I am not among the advocates of the 2-year plan. I see it only as a last-ditch measure if the 5-year plan has proved unstable."

L. Rotshteyn, a work colleague of A. Bogatyrev, has backed up his opinion. Even if we suppose that they are expressing their personal opinions, that changes nothing, since they are the ones who hold in their hands the lead strings of the experiment.

Why is the 2-year plan needed? Why are the contractors fighting for it, and why is it supported by the customers (at present, to be sure, more in words than deeds)? Without going into extensive explanations, we should note only one circumstance: the lack of a plan for completion of capacities and projects in the second year of the contractor's work makes it virtually impossible to order the manufacturing equipment from organizations which make up deliveries and to place orders in time with manufacturing plants. Nor is it an accident that 84 percent of the capacities to be completed by the Belorussian Ministry of Industrial Construction are scheduled for the end of the year, which means all-out drives and crash efforts. It is not at all rare for equipment to arrive from plants after the deadline for acceptance of a project for operation has passed.

USSR Gosplan, the USSR Ministry of Finance, and USSR Stroybank, instead of establishing a strict system of 2-year planning, which would be compulsory and unconditional for customers, have been writing them imploring letters. One can respond to a request, but one can also pass it over in silence. The Belorussian Ministry of Industrial Construction and Glavmosinzhshtroy [Moscow City Main Administration for Construction of Engineering Installations], which have been operating under the conditions of the experiment since last year, making use of the authority vested in party and Soviet authorities, are still somehow managing to force local customers to adhere to the directive, but that is the trouble with union ministries. They don't want to be bothered with 2-year plans.

The planning of commodity output in the construction industry is a very debatable issue. As we know, it is one of the cornerstones of the experiment. This indicator is used to link into a general system such elements of the plan as "partial completion," profit, finished output, etc. But today this stone itself looks more like a pile of cobblestones. The commodity output of the construction industry, as set forth in the conditions of the experiment, has become an unfailing component in the contractor's plan, but officially the customer bears no responsibility for this indicator.

Again we should recall A. Bogatyrev. He feels that there is no need for commodity output to be planned in the customer's case: he says that an additional column has been added to the form of the itemized list of the construction site which is compiled before the end of construction, and the volume of commodity output is entered in that column. This document is signed by both the customer and the contractor, which means that mutual responsibility is ensured. If only it were! But things are different in actuality. The customer, since there is no indicator in his plan, is simply not concerned about it. Moreover, he issues the list for only 1 year. But the participants in the experiment need a 2-year period!

L. Levchenko, deputy chief of the construction economics division of USSR Gosstroy, has proposed an effective method of treating this disease. In his opinion, USSR Stroybank, which is quite able not to undertake financing of projects if there is no 2-year plan and no target for commodity output pertaining to them, should act against reluctant customers.

The Belorussian Ministry of Industrial Construction proposes a potent measure, convert customers and organizations responsible for making up equipment deliveries on a system of bank credit-financing. This would force them willy-nilly to look to the final result, that is, to work in close contact with construction people. As a matter of fact, if this kind of financing were introduced, then customers would be forced to pay the bank a charge on credit. And that charge, it must be said, is no trifle. Moreover, if the project is not delivered on time, a higher charge on credit is automatically imposed. (We should remember that the Belorussian Ministry of Industrial Construction lost 11 million rubles for this reason over the 3-year period.)



And so we get a paradoxical situation: the construction industry is paying a higher rate of interest regardless of whether it is at fault for the delay of completion or it is the customer's fault (for not delivering equipment, for not furnishing project plans and estimates). There is a procedure whereby the contractor can seek to recover from the customer all losses incurred through the latter's fault. But this is too cumbersome and lengthy a procedure to yield the desired result. The bank collects the money from the contractor immediately, while about a year is required to obtain compensation from the customer.

There is now an urgent need to alter the procedure for instituting penalties and for arranging it so that the customer pays penalties to the contractor without appeals to an arbitration committee and within an extremely short period of time. Of course, at the outset one must weigh all the "pros" and "cons," but one thing is clear penalties should be used to put the situation to rights, that is, to bring this part of the experiment into conformity with the spirit of the regulation, which was issued as a directive. USSR Stroybank should have the role of first fiddle in solving this problem.

The participants in the experiment also put this question to USSR Stroybank: When will the source of credit be unified? At present the bank is financing only projects of customers whose resources it holds. Should the customer dilly-dally or miscalculate, it is the construction industry that goes aground financially.

Nor has another important area of the experiment--improvement of material and technical supply--been taken to its logical conclusion. We have already spoken about deliveries of equipment. Matters are little better with the supply of materials, products and fabrications for construction. Rolled metal products are the Achille's heel of supply. Last year the Belorussian Ministry of Industrial Construction failed to receive 60,000 tons of metal. (And then the ministry is blamed!)

And again the reason is that one of the conditions of the experiment was not fulfilled: the Ministry of Industrial Construction was to be supplied on the basis of needs set forth in project plans and estimates--in short, on the basis of physical volumes. In actuality the procedure remained as before: resources are allocated "per million" rubles of construction and installation work. This method, which is altogether suitable for a large union ministry, which itself, since it possesses large resources, can redistribute materials, has proved to be unsuitable for an individual construction organization. It needs to be issued precisely what it needs to complete construction of the project (in the necessary amount and assortment). Otherwise above-allowance stocks of certain materials are built up, and there is a shortage of others. It is for that reason that the Belorussian Ministry of Industrial Construction was to be supplied on the basis of physical volume. But Gossnab did not make haste to change the procedure, though it is not unaware of the appeal for aid from the construction

industry. After all, all of this is done as an exception, but what is needed is adoption of a firm rule.

In any science, economic science included, the purity of the experiment must be observed. In order to set up a chemical experiment, say, one must at the minimum have all the reagents and vessels. It is therefore completely unclear why the Belorussian Ministry of Industrial Construction and the other nine construction organizations are involved in an extremely complex experiment when elementary requirements are not met.

Speaking of the purity of the experiment; the construction industry is not in need of any sort of indulgences and preferences. They are asking for the conditions to be adhered to. But in Gosplan, Gossnab and Stroybank (one could also enumerate the other "godparents") they adhere for some reason to the viewpoint that the most reliable results can be obtained only when the subjects in the experiment are put "under quasicombat conditions." In actuality they are canceling out the efforts of the zealous and delaying the evolution of an effective new method of organizing capital construction for an indefinite period.

In the opinion of many specialists, a situation has now come about in which it would be enough for the central agencies to carry out several measures which are altogether within their power--and it would be possible to speak of real results. The set of standards has been devised, it is indeed very reliable, since the individual elements of the reorganization were previously tested. The methodological guidelines are available, though they are not all-inclusive and need adjustment. But after all it is not as though you inevitably go astray without that. But what are needed are instruments, if that is the right term. After all, every principle adopted in the experiment needs to be backed up with specific measures along all lines--planning, supply, financial and legal. Only then can we expect all the indicators of activity to be linked together into an orderly system. Today, unfortunately, we cannot speak of a system, because the subsystem represented by the customer is clearly not part of it.

How are we to explain the insufficient attention paid to the experiment by the central departments: if they do anything at all, it is done, that takes a great effort and occurs only after many entreaties and reminders. Persistence of old ways of thinking? Are they too busy? Distrust of what is new? Only they themselves can answer these questions.

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## CONSTRUCTION, CONSTRUCTION MACHINERY AND BUILDING MATERIALS

### CONCENTRATION OF CONSTRUCTION INDUSTRY IN THE UKRAINIAN SSR

Kiev EKONOMIKA SOVETSKOY UKRAINY in Russian No 3, Mar 79 pp 64-67

[Article by Ye. Krotkov, head of a sector at the Scientific Research Institute of the Construction Industry, and G. Kazachkov, Candidate of Technical Sciences: "Methods for Concentrating Construction Production in the Ukrainian SSR"]

[Text] Of the many problems confronting the builders, one of the most important and vital ones is that of selecting a rational proportion for the branch and territorial principles of control.

During the past 5-10 years, the trend has been towards introducing mainly the branch principle to the detriment of the territorial principle. Improvements in the level of branch specialization are associated with the organization of contractual construction organizations at many branch ministries and departments.

A study of this problem in the Ukraine has shown that during the 1963-1967 period the number of ministries and departments engaged in contractual construction work increased from 26 to 68, or by more than 2.5 times. At the present time, almost all of the ministries have subordinate construction organizations which function on a parallel basis with organizations of the construction ministries.

In some oblasts and cities throughout the republic, construction operations are being carried out simultaneously by more than 25-30 departments. For example, the number of such departments in L'vovskaya Oblast is 29, Khar'kovskaya Oblast -- 31, Donetskaya Oblast -- 29, Dnepropetrovskaya Oblast -- 26, in Kiev -- 39 and so forth.

Analysis has shown that only 59 percent of the overall number of primary organizations engaged in carrying out 75 percent of the overall volume of construction-installation work throughout the republic is concentrated at 14 construction and joint ministries of the Ukrainian SSR and the USSR.

The remaining work volumes are being carried out by a large number of small construction organizations belonging to other non-construction departments.

# Changes and Established Departmental System in Construction in the Ukrainian SSR During the 1963-1977 Period

Показатели (1)	Единица измерения (2)	(3) По годам		Прирост 1977 г. к 1963 г. (%) (5)
		1963	1977 (4)	
(6) Годовой объем строительно-монтажных работ в целом по республике	млн. руб. (7)	3 641,6	9 480,0	160,3
(8) Количество министерств и ведомств, осуществляющих строительство в республике:	(10)			
(9) строительных и смешанных	шт.	9	14	60
(9) прочих министерств	—	17	54	210
(12) Выполненные объемы работ в республике:				
(9) строительными и смешанными министерствами	млн. руб. (7)	2 754,4	7 015,0	154,7
(9) прочими министерствами	—	887,2	2 465,0	177,6
(13) Количество первичных организаций:	(10)			
(9) строительных и смешанных министерств	шт.	1 287	2 272	78,5
(9) прочих ведомств	шт.	552	1 620	193,5
(14) Среднегодовые объемы работ:				
(9) строительных и смешанных министерств	млн. руб. (7)	344,3	501,1	45,5
(9) прочих министерств	—	52,2	45,6	12,6
(15) Среднегодовые объемы работ первичных организаций:				
(9) строительных и смешанных министерств	—	2,14	3,10	44,9
(9) прочих министерств	—	1,61	1,52	—
(16) Удельный вес прочих министерств в общем количестве	%	66	79,4	13

## Key:

- |   |   |
|---|---|
| 1. Indices  | 9. Construction and joint                                     |
| 2. Unit of measurement  | 10. Units   |
| 3. By years   | 11. Other ministries  |
| 4. 1977 (plan)  | 12. Work volumes carried out in the republic:                 |
| 5. 1977 increase compared to 1963 (%)   | 13. Number of primary organizations:                          |
| 6. Annual volume of construction-installation work for republic as a whole            | 14. Average annual work volumes:                              |
| 7. Millions of rubles   | 15. Average annual work volumes of primary organizations:     |
| 8. Number of ministries and departments performing construction work in the republic: | 16. Proportion of other ministries compared to overall number |

\* The joint ministries and departments include those departments for which the construction and operation of projects belonging to their branch constitute the essence of their activities. The term "other" is meant to include those departments which do not consider construction to be the principal thrust of their activities.

In 1977 there were 460 contractual construction organizations in the republic, representing an annual work volume of up to 1 million rubles (15 percent of the overall amount). Almost all of these organizations are subordinate to other non-construction ministries.

The change in the departmental nature of things and in the network of construction organizations is described by the data in the above table.

The low technical level of production and for the industrialization of construction organizations of other ministries exerted a negative effect on the technical-economic indices for their operations: their output was 40 percent lower than that for organizations of construction ministries and production costs were 3-5 percent higher. The quality of the work carried out in these organizations was not very high.

The existing departmental structure in construction was created historically and to a certain extent spontaneously, in the absence of an overall future plan for the development in the oblasts of a network of construction organizations and consideration of the state and inter-departmental interests.

A majority of the construction organizations of other ministries were created as repair organizations. However, during the initial years of their activities many of them began to carry out up to 50 percent of the overall volume of new construction work, with up to 20 percent of the projects not belonging to their branch.

Construction is an independent branch of the country's national economy. At the same time, the increasing departmental structure and the dispersal of the construction organizations among many branch ministries are disrupting the integrity and independence of this branch, encouraging parallelism, scattering material resources and exerting a negative effect on the utilization of manpower.

One of the principal causes of other departments acquiring their own construction organizations is the slow intensification of the capabilities of the construction ministries and, in this regard, their inability and quite often lack of interest in satisfying all of the requirements of the branch ministries for carrying out the construction-installation work required for production development.

The economic reform, the formation of a fund for production development and housing construction at the enterprises and associations and a program aimed at intensifying production by means of reconstruction and modernization have expanded considerably the requirements of the branch ministries and their enterprises for construction-installation work and, most important, they have altered substantially the character and conditions for the carrying out of this work. All of this requires appropriate reorganization of the construction ministries and changes in the technology, planning and intensification of their capabilities.



Nor is the situation any better with regard to controlling and coordinating the work of the numerous departmentally disconnected construction organizations in the various regions, oblasts and cities throughout the republic. The local soviets, in the form of capital construction control over the financing and planning committees, are exerting a certain amount of influence over capital construction in the various areas. However, this influence is not very effective. The rights of the mentioned organs are not being reinforced by material and financial resources. The local soviets lack the opportunities for selecting the general contractors for carrying out the work and distributing them among the construction organizations in the interest of concentrating the work and reducing the number of organizations.

The Orel method for creating a single customer, planning or contractual construction organization testifies to the great opportunities available to the local soviets for organizing capital construction in the various areas and reducing the departmental nature of things.

In 1977 the concentration of residential housing construction was carried out at more than 50 cities in the RSFSR, Belorussia and the Ukraine, based upon the Orel method.

At one time, the creation in the large cities of main administrations for residential housing construction played a great role in the concentration of construction production. Organization based upon a large number of departmentally disconnected construction subunits of Glavmosstroy [Main Administration for Housing and Civil Engineering Construction in Moscow City], Glavleningradstroy [Main Administration for the Housing, Civil Engineering and Industrial Construction of the Leningrad Gorispolkom] and Glavkiyevstroy [Main Administration for Housing and Civil Engineering Construction of the Kiev Gorispolkom] made it possible to improve considerably the technical level and quality of construction in large cities throughout the country.

The first step towards eliminating excessive departmentalization could be that of concentrating overall coordination and management of municipal construction in the hands of the local soviets in many cities throughout the republic.

An expansion of the rights and opportunities of the territorial organs may affect substantially the organization of control over capital construction. However, it is our opinion that this measure alone is hardly capable of solving the problems confronting the builders, particularly with regard to reducing the excessive degree of departmentalization.

One vital measure is that of creating a single organ for controlling and coordinating the work of the construction organizations, regardless of their departmental subordination, an organ which responds to the need for developing construction as a branch on the whole.



It is our opinion that all new construction, regardless of the size of the projects, their territorial distribution or the financing source, must be carried out by the construction ministries. Moreover, the erection of small, territorially dispersed projects must be carried out by mobile construction organizations of these ministries.

Computations reveal that the transfer to the construction ministries of just 50 percent of the new construction work being carried out by the organizations of branch ministries and departments in the Ukraine would promote an annual increase in construction output per worker of from 8,700 to 10,700 rubles, that is, an increase of 19 percent. Moreover, it would lower the production cost for construction-installation work by a minimum of 20 million rubles.

Departmental construction organizations should be retained in the branch ministries for the carrying out of construction-installation work that is closely associated with the principal production technology and the operational process employed at the enterprises (metallurgical, mining and a number of others).

The specialized construction organizations of Minenergo for the Ukrainian SSR, Minmelliiovodkhoz for the Ukrainian SSR, Minsvyaz' [Ministry of Communications] for the Ukrainian SSR, Ukrsel'khoztekhnika and a number of other ministries and departments, the work of which is closely associated with the principal operational activities of the enterprises and farms of these departments and closely intertwined with the principal production technology, should ideally be retained. At the same time, the carrying out of similar type work for the construction ministries should be forbidden; this will promote raised responsibility on the part of definite departments for the carrying out of a particular type of complex of work.

For example, there is no basis for weak-current work being carried out by many organizations of the construction ministries parallel with organizations of the Ministry of Communications.

Considerable economic results can be realized by improving the organization of capital repair work. In the near future it will become possible to centralize the capital repair of residential housing projects in specialized subunits of construction departments, as has already been carried out in Glavmosstroy.

The regulation of construction organization in the mentioned direction must be accompanied by a complex of measures aimed at improving control and planning, evaluating the work of organizations and material incentives and so forth. The branch ministries must be interested in transferring work over to the construction organizations and they must be assured that the work will be completed in a timely and high quality manner. In turn, it should be made profitable for the construction ministries to carry out the orders of the branch ministries.

Certainly, all of the mentioned proposals are preliminary in nature and require further development and amplification by each department separately, with the branch peculiarities and the production technology being taken into account.

Many unsolved problems remain in the sphere of territorial-branch control and reducing excessive departmentalization in construction control. For example, is it proper for the republic to have six construction ministries and departments (Mintyazhstroy [Ministry of Construction of Heavy Industry Establishments] for the Ukrainian SSR, Minpromstroy [Ministry of Industrial Construction] for the Ukrainian SSR, Minsel'stroy [Ministry of Rural Construction] for the Ukrainian SSR, Minmontazhspetsstroy for the Ukrainian SSR, Glavkiyevgorstroy, Ukrmezhkolkhozstroy) and also a number of joint ministries (Minvodkhoz [Ministry of Land Reclamation and Water Resources] for the Ukrainian SSR, Mindorstroy [Ministry of Construction and Utilization of Roads] for the Ukrainian SSR, Minugol' [Ministry of the Coal Industry] for the Ukrainian SSR, Minsvyaz' for the Ukrainian SSR). In addition, there is an extensive network of organizations belonging to union construction ministries (USSR Mintransstroy [Ministry of Transport Construction], USSR Minenergo and others).

Naturally, the number of ministries must not be stable. Depending upon the assigned national economic tasks, the ministries may join together or be divided up. However, during the past 10-15 years we have observed only a dividing up of the ministries, accompanied by a reduction in the work volumes.

As a branch of the national economy, construction is confronted by many other complicated and vital problems. A single organ of control is required if these problems are to be solved and if construction on the whole is to be further developed.

Radical improvements in the work of the builders, through the implementation of improvements in the organization of control, will promote the successful carrying out of those tasks assigned to the republic's national economy during the Tenth Five-Year Plan.

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## CONSTRUCTION, CONSTRUCTION MACHINERY AND BUILDING MATERIALS

### PROBLEMS OF CAPITAL CONSTRUCTION IN TURKMENIA DESCRIBED

Moscow MATERIAL'NO-TEKHNICHESKOYE SNABZHENIYE in Russian No 7, Jul 79  
pp 42-43

[Article by A. Zubrilin, chairman of the Turkmen Gossnab: "A New System--Old Flaws"]

[Text] The system of material and technical supply for capital construction in Turkmenia has undergone a fundamental reorganization. Since January 1978, the Turkmen Ministry of Construction has been the first among the republics of Central Asia, Transcaucasus and Kazakhstan to convert to the new form of supply through the bodies of the Turkmen Gossnab in accord with the demand determined by the plans and estimate.

This important step which necessitated major preparations was undertaken in the aim of improving capital construction, and for eliminating the lag which had arisen at many major construction sites. The conversion to the new system frees the general contracting organizations from supply functions which are not inherent to them, and makes it possible to focus all attention on organizing the construction process and the development of their own production base.

Naturally the reorganization necessitated from both parties--the Turkmen Gossnab and the Turkmen Ministry of Construction--the unswerving fulfillment of reciprocal obligations. These included: purely organizational measures such as the transfer of the necessary personnel, machinery and equipment and warehouse facilities from the ministry to the Gossnab for creating under it an Administration for Production and Technological Supply. But there were also more essential demands which comprise, it can be said, the basis of the new system and without fulfilling them it would be difficult to achieve any positive results. First of all this is the intelligent defense of the funds for the forthcoming year, the improving of design and estimate specifications, a sharp reduction in the material intensiveness of the projects and incomplete production, the elaboration and implementation of specific proposals aimed at saving building materials such as metal, lumber, and so forth.

In a word, the new form of supply for capital construction, in providing broad opportunities for the general contractor, at the same time urgently posed the questions of a thrifty attitude toward the material resources, their flexible and efficient use, and the strictest thriftiness at the construction sites.

The new supply system has been living and in use for more than a year. And obviously it is time to sum up the results of what has been done and to see what we have gained and what has not been achieved.

At joint sessions of the boards of the Turkmen Minstroy [Ministry of Construction] and Gossnab and at meetings at various levels the indisputable advantages of the system were emphasized. Thus, due to the more complete and more rhythmical supply of the construction sites, the construction pace has been picked up at many major projects in the republic such as the new capacity at the Chardzhou Superphosphate plant imeni V. I. Lenin, the Gaurdak Sulfur Plant imeni 50-Letiye TSSR, the Turkmen Nitrogen Fertilizer Plant, and others.

The Minstroy, according to the demand defined by the working plans and estimates was allocated an additional 17,000 tons of rolled metals, 12,000 tons of cement, 4,500 m<sup>3</sup> of lumber, 3,500 m<sup>2</sup> of ceramic floor tile, and so forth. The concentration of material resources in the supply and marketing administrations made it possible to dispose of them more efficiently and flexibly, and to meet the demands of the construction sites under coordinated schedules. Warehouse inventories declined. Rational ties were established between the supply-marketing organizations and the construction sites.

But still, regardless of the obvious achievements, it would be premature to assert that the new supply system has been put fully into effect and that a maximum effect has already been obtained from its introduction. And the question is not merely that up to now the Minstroy has not turned over the equipment and motor transport to the supply and marketing organizations, or that it has not carried out certain other obligations. The main thing, in my view, is the question of the lack of understanding by certain managers of the essence and ultimate aims of introducing the given system.

Among the construction workers there is the notion that the new system is a panacea against all misfortunes. The Turkmen Gossnab is to meet the requests and cover the existing gap between the allocations and the demands of the construction workers at the expense of other ministries and departments. But, unfortunately, on its side the ministry is not taking sufficiently serious measures in response to provide a maximum savings of resources.

What determines a savings in capital construction? First of all, the acceleration in the rate of building the projects. To build rapidly means to keep the materials and parts a shorter time under the open sky, to make wider use of progressive light and three-dimensional elements, to minimize reworking, damage, and reduce losses. It is essential to solve a range of production and social problems.

Let us begin with the fact that often the capital construction plans are not coordinated with the supply plans. This is due to the fact that at the moment of determining the demand for resources there still are no approved structure and volumes of construction-installation work. This was the case at the end of 1978. And the structure of work for the Ministry for 1979, in our opinion, has been compiled in an unskilled manner. In addition it is not coordinated with the Turkmen Gosstrib, and has not been calculated properly at the information computer center of the ministry. As a result 51 tons of rolled metal were ordered per 1,000 m<sup>2</sup> of calculated area, while at the same time the average Union standard is 61 tons. The ministry has not sought an increase in the allocations of rolled metal for the construction sites of the chemical industry where the program has been increased by 17.7 million rubles.

Inaccuracies were also made in drawing up the title lists and even in the name of the projects. For example, on the territory of the Ashkhabad Glass Combine imeni V. I. Lenin, a new shop is being built, and for some reason the project is called the "reconstruction of the thermos shop." There is the same story with the projects at the Bezmeim Cement Plant, the candy factory in Mary, and so forth. And certainly this is fraught with a reduction in the expenditure rates and a cutback of the allocations. For the thermos shop alone we were short 360 tons of metal.

The new system requires an improvement in the methods of planning capital construction. However even now we still have not escaped the practice of infinite corrections by the ministry in the plans of its subdivisions, and it is not always considered whether there are possibilities of allocating additional materials to them. The situation is aggravated by the fact that at times the metal, cement and other materials are allocated to projects in amounts not provided for by the supply plans. The scattering of assets as before remains the major problem.

As an example one might give the Turkmentsentrostroy [Turkmen Central Construction] Administration which is working simultaneously on almost 130 projects. Here the primary projects have been determined and these are under constant control not only by the administration but also by the ministry. At the same time no one has lifted the responsibility of the administration chief V. P. Kushpel' for the other also planned projects. They start work with few forces and deliver the structural elements and metal. But soon the personnel abandons the site in endeavoring to complete the "hot" quotas and installations. Thus incomplete construction arises. And this is still another reason for the loss of resources.

In continuing the talk about the rational use of materials, we must return to the initial stage of preparing construction, that is, the process of drawing up the design and estimate specifications. Right up to 1979, not a single plan worked out at Turkmengosproyekt [Turkmen State Design Institute] was supplied proceeding from the structural standards for metal use. Up to now the specifications have been issued to the construction workers



without attaching summary lists of material consumption. The general contracting organizations, while condemning this shortcoming in words, in practice willingly accept metal-intensive plans. The construction workers willingly assemble heavy structural elements as in this instance the plan is fulfilled more rapidly and a bonus is guaranteed. The earnings of the designers are also directly tied to the overall cost of the planned projects. The higher it is the greater the deductions into the incentive funds. Thus, the question of creating economic levers for metal consumption remains open. Here the crucial word rests with the Turkmen Gosstroy.

A good organization of production at the construction sites is of great importance in the struggle to save metal. We have examples when the construction engineers make bold, well backed up corrections into the blueprints and estimates and these ultimately provide a great savings in metal. This is what is done, for example, by the gas construction workers in Kirpichli and Shtalyk. This is how the engineers and workers work at the projects of the Chardzhou Superphosphate Plant, and so forth. An effective socialist competition for the safekeeping and the economy of material resources has developed in the collectives which have supported the initiative of the Sverdlovsk workers carried out under the motto "The Five-Year Quota of a Brigade with Fewer Personnel."

At the same time the Turkmen Gosstab and Ministry have still not achieved rigid accounting and control over the use of resources at the projects.

The ultimate aim of introducing the new form of supply has been to deliver complete sets of equipment to the construction sites, as this accelerates the construction rate of the projects and increases the responsibility of the line personnel for the safekeeping of resources and lowers losses.

The Turkmen Gosstab could supply in a centralized manner and in complete sets the following: Glass, sanitary technical equipment, gas ranges, cable products, linoleum, and so forth. It would be possible to provide services for cutting and laying out rolled ferrous metals, and this would make it possible to save up to 5 percent of them. There are also possibilities of reducing losses in the transporting of cement. However the introduction of complete sets is being held up by the absence of a container system and production areas. The ministry is not an active partner and assistant in these questions. It has not carried out certain obligations to us.

The workers of the construction industry are placing valid complaints against us for the shortage of the necessary assortment of metal. In actuality the metallurgical workers of Krivoy Rog, Magnitogorsk and others have systematically violated the delivery contracts for fourth grade metal, and have arbitrarily changed the shipping dates. Under these conditions the production workers are forced to make substitutions and increase the wastes of rolled metal.



Not the gross but rather the assortment, not the cubic meter but rather the set, not the amounts of material resources used but rather the projects completed with the least expenditures--this is what should become our common aim.

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## CONSTRUCTION, CONSTRUCTION MACHINERY AND BUILDING MATERIALS

### SCIENTIFIC RESEARCH INSTITUTIONS FOR CONSTRUCTION LISTED

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[Listing of the primary scientific research organizations working in the fields of construction, urban construction, architecture, building materials, and construction and road machine building: "At USSR Gosstroy"]

[Text] Carrying out the decree of the CPSU Central Committee and USSR Council of Ministers of 29 July 1978 entitled "Measures to Increase the Efficiency of Scientific Research Work in the Fields of Construction, Architecture, Building Materials, and Construction and Road Machine Building and to Accelerate the Introduction of Scientific Advances in Construction Practice," USSR Gosstroy ratified the list published below by decree No 11 of 29 January 1979.

List of the Primary Scientific Research Organizations Working in the Fields of Construction, Urban Construction, Architecture, Building Materials, and Construction and Road Machine Building

#### I. In the Fields of Construction, Urban Construction, and Architecture

1. The Order of the Labor Red Banner Central Scientific Research Institute of Construction Designs imeni V. A. Kucherenko (TsNIISK imeni Kucherenko) of USSR Gosstroy — theory of structures and construction mechanics; fundamentally new forms of metal, stone, wood, and asbestos cement design elements and design elements made of new materials based on development of the theory of structures; technology of their production; earthquake resistance of buildings and structures; fire resistance of construction elements.

2. Scientific Research Institute of Concrete and Reinforced Concrete (NIIZhB) of USSR Gosstroy — concrete and reinforced concrete design elements; theory and methods of calculating and designing them; theory and technology of concretes; reinforcement and welding it; protection of concrete and reinforcement against corrosion.
3. The Order of the Labor Red Banner Scientific Research Institute of Foundations and Underground Structures imeni N. M. Gersevanov (NIIOSP imeni Gersevanov) of USSR Gosstroy — soil mechanics; foundations and bases of buildings and structures; theory and methods of design; work techniques; underground structures.
4. Scientific Research Institute of Construction Design Elements (NIISK) of USSR Gosstroy — design elements of buildings and structures erected in complex engineering geological conditions (subsiding soil, mined areas, and the like); methods and means of monitoring the quality of construction design elements, including indestructible ones.
5. Scientific Research Institute of Construction Physics (NIISF) of USSR Gosstroy — construction heat engineering, acoustics, light engineering, and climate control; insulation and solar protection of buildings and built-up areas; methods of heat engineering, light engineering, and acoustic tests of design elements, buildings, and structures; problems of the durability of dividing elements and structures.
6. Central Scientific Research and Planning-Experimental Institute for Organization and Mechanization of Construction and Technical Assistance to Construction (TsNIIOMTP) of USSR Gosstroy — methods of organization, technology, mechanization, and organization of construction work; organization of the use of machinery; systems of construction vehicles, machines, and power tools; metrology, quality control systems, and safety techniques in construction and installation work.
7. Scientific Research Institute of Construction Economics (NIIES) of USSR Gosstroy — economics of construction work; economical methods of managing construction and construction enterprises; planning, incentive, and economic accountability; structure and organizational forms of management, specialization, cooperation, and forming combines; effectiveness of capital investment and new technology, price formation, and establishing standard estimates in construction; establishing norms for expenditure of materials in construction.
8. Central Scientific Research and Planning-Experimental Institute of Automated Systems in Construction (TsNIIPIASS) of USSR Gosstroy — automated control systems (including systems for technological processes) in construction, the construction industry, designing, and scientific research; automated design systems.

9. Central Institute of Scientific Information on Construction and Architecture (TsINIS) of USSR Gosstroy — problems of information and propaganda; information systems.
10. All-Union Scientific Research and Planning Institute of Labor in Construction (VNIPI Truda v Stroitel'stve) of USSR Gosstroy — problems of economics, productivity, and scientific organization of labor in construction and at construction industry enterprises; setting labor norms and protection of labor in construction.
11. Central Scientific Research and Planning-Experimental Institute of Industrial Buildings and Structures (TsNIIpromzdaniy) of USSR Gosstroy — typology, architectural planning and design concepts of industrial buildings and structures; master plans for industrial centers and enterprises; intersectorial and sectorial standardization of industrial buildings and structures; foundations of standardization in construction; systems and units for heating, ventilation, and air conditioning in industrial buildings.
12. All-Union Scientific Research Institute of Water Supply, Plumbing, Hydraulic Engineering Structures, and Engineering-Hydrogeology (VNII VODGEO) of USSR Gosstroy — water supply and plumbing for industrial enterprises; decontamination of industrial waste water and preparation of water for production purposes; closed-circuit systems and recycled water supply at enterprises; hydraulic engineering structures at industrial enterprises; lowering of the water table at the sites of industrial enterprises.
13. Production and Scientific Research Institute for Engineering Surveying in Construction (PNIIIS) of USSR Gosstroy — problems of engineering geological, geocryological, hydrogeological, and geophysical surveying for construction; seismic microzoning; organization, technology, economics, and equipment for engineering surveying for construction.
14. Central Order of the Labor Red Banner Scientific Research and Planning Institute of Metal Construction Design Elements (TsNIIproyektstal'konstruktsiya) of USSR Gosstroy — development of new and improvement of presently used industrial and special-purpose metal construction design elements of buildings and structures; standardization of metal designs and structures; standardization of metal design elements and structures; searching for optimal construction steels and light alloys and studying their properties; improving the assortment of metal sections; improving methods and means for protecting metal construction elements against corrosion; welding metal design elements.
15. All-Union Planning and Scientific Research Institute of Industrial Transportation (Promtransniiprojekt) of USSR Gosstroy — problems of the development and improvement of rail, motor vehicle,

and continuous types of industrial transportation; containerization and stacking of freight, full mechanization and automation of loading and warehouse jobs.

16. Central Scientific and Planning Institute of Model and Experimental Housing Design (TsNIIEP Zhilishcha) of Gosgrazhdanstroy [possibly State Committee for Civil Construction] - typology, architectural planning and design concepts, and domestic equipment of residential buildings; building and fixing up housing complexes; technology of factory home building; foundations of standardization in residential and civil construction.
17. Central Scientific Research and Planning Institute for Urban Construction (TsNIIP Gradostroitel'stva) of Gosgrazhdanstroy - urban construction; population patterns and regional planning; problems of controlling the development of cities and systems of populated points.
18. Central Scientific Research and Planning Institute of Model and Experimental Design for Schools, Preschool Institutions, and Secondary and Higher Educational Institutions (TsNIIEP Uchebnykh Zdanii) of Gosgrazhdanstroy - typology, architectural planning and design concepts, and domestic equipment of buildings for standard schools, preschool institutions, vocational-technical, secondary, specialized, and higher educational institutions and complexes for them.
19. Central Scientific Research and Planning Institute of Model and Experimental Design of Resort, Health, and Tourist Buildings and Complexes (TsNIIEP Kurortno-Turistskikh Zdanii i Kompleksov) of Gosgrazhdanstroy - typology, architectural planning and design concepts, and domestic equipment of buildings for health resort, tourist, and health treatment buildings and complexes of them.
20. Central Scientific Research and Planning Institute of Model and Experimental Design of Buildings for Trade, Public Catering, Domestic Services, and Tourist Complexes (TsNIIEP Torgovo-Bytovykh Zdanii i Turistskikh Kompleksov) of Gosgrazhdanstroy - typology, architectural planning and design concepts, and domestic equipment of trade buildings, public catering enterprises, enterprises for municipal services, and complexes of them; tourist complexes and institutions in cities and areas with numerous historical and cultural monuments.
21. Central Scientific Research and Planning Institute of Model and Experimental Design of Spectator, Sports, and Administrative Buildings and Structures imeni B. S. Mezentshev (TsNIIEP Zrelishchnykh Zdanii i Sportivnykh Sooruzhenii imeni B. S. Mezentshev) of Gosgrazhdanstroy - typology, architectural planning and design concepts, and domestic equipment of spectator, sports, and administrative buildings and structures and complexes of them.



22. Central Scientific Research and Planning-Experimental Institute of Engineering Outfitting of Cities and Residential and Public Buildings (TsNIIIEP Inzhenerogo Oborudovaniya) of Gosgrazhdanstroy — systems and structures for engineering outfitting of populated points; interior systems and engineering outfitting of residential and public buildings and structures.
23. Central Scientific Research Institute for Planning and Construction of Rural Populated Points and Civil Construction in the Countryside (TsNIIIEPgrazhdansel'stroy) of Gosgrazhdanstroy — planning, construction, and fixing up of rural populated points; typology, architectural planning and design concepts, and domestic equipment of residential and public buildings for rural construction; low, fully prefabricated, primarily wooden buildings.
24. Central Scientific Research Institute of the Theory and History of Architecture (TsNIITIA) of Gosgrazhdanstroy — theory of Soviet architecture, history of architecture and construction engineering; protection and restoration of architectural monuments.
25. Zonal Scientific Research and Design Institute of Model and Experimental Design of Residential and Public Buildings (SibZNIIEP) of Gosgrazhdanstroy — typology, architectural planning and design concepts of housing and public buildings for Siberian conditions; constructing and fixing up the areas of residential complexes for the regions of Siberia.
26. Zonal Scientific Research and Design Institute of Model and Experimental Design of Residential and Public Buildings (LenZNIIEP) of Gosgrazhdanstroy — typology, architectural planning and design, concepts of housing and public buildings for conditions of the Northern Zone of the country; construction and fixing up the area of residential complexes for regions in the Northern Zone of the country.
27. All-Union Scientific Research Institute for Construction of Trunk Pipelines (VNIIST) of the Ministry of Construction of Petroleum and Gas Industry Enterprises — trunk pipelines; methods of calculation and design, methods and means for welding and protection of pipelines against corrosion; technology, organization, and mechanization of the construction of pipelines and surface facilities.
28. Siberian Scientific Research and Design Institute of Petroleum and Gas Field Construction (SibNIPIgazastroy) of the Ministry of Construction of Petroleum and Gas Industry Enterprises — trunk pipeline systems for transporting fuel, ore, building materials, and other loads.
29. All-Union Scientific Research and Planning-Design Institute for Pipe Container Systems (VNIIPitransprogress) of the Ministry of Construction of Petroleum and Gas Industry Enterprises — trunk pipeline systems to move fuel, ore, building materials, and other loads.

30. State Design-Surveying and Scientific Research Institute of Civil Aviation (Aeroprojekt) of the Ministry of Civil Aviation — synthetic airfield surfaces; the theory of calculating and methods of designing airfield surfaces.
31. State All-Union Scientific Research Institute of Roads (Soyuzdornii) of the Ministry of Transport Construction — vehicular roads; kinds and types of roadbed, surfaces, and road materials; technology, organization, and mechanization of the construction of vehicular roads and airfield runways.
32. All-Union Scientific Research Institute of Transport Construction (TsNIIS) of the Ministry of Transport Construction — railroads (including electrification), bridges (rail, motor vehicle, and urban), subways and transportation tunnels, protection of seashores; types and kinds of structures; technology, organization, and mechanization of the construction of these structures.
33. All-Union Scientific Research Institute of Hydro Engineering and Land Improvement imeni A. N. Kostyakov (VNIIGIM) of the USSR Ministry of Land Reclamation and Water Resources — scientific foundations of the design of land reclamation systems; future system of machines for land reclamation construction; economics of reclamation construction.
34. Ukrainian Scientific Research Institute of Hydro Engineering and Land Reclamation (UkrNIIGIM) of the USSR Ministry of Land Reclamation and Water Resources — technology and mechanization of construction of open and closed irrigation systems and anti-filtration design elements; technology of manufacturing design elements of reclamation systems.
35. Northern Scientific Research Institute of Hydro Engineering and Land Reclamation (SevNIIGIM) of the RSFSR Ministry of Land Reclamation and Water Resources — technology and mechanization of construction of drainage and drainage-watering systems (including systems in the Non-Chernozem Zone).
36. All-Union Order of the Labor Red Banner State Head Planning-Surveying and Scientific Research Institute for the Transfer and Distribution of the Waters of the Northern and Siberian Rivers (Soyuzgiprovodkhoz) of the USSR Ministry of Land Reclamation and Water Resources — methods of designing and building facilities for interbasin transfers of river flows, large canals, reservoirs, and hydro engineering structures.
37. Kuban' State Planning and Scientific Research Institute (Kuban'giprovodkhoz) of the USSR Ministry of Land Reclamation and Water Resources — technology and mechanization of the construction of rice irrigation systems.

38. Central Order of the Labor Red Banner Scientific Research and Planning Institute of Flour Milling, Groats, Mixed Feed, and Elevator Industry (TsNIIpromzernoprojekt) of the USSR Ministry of Procurement — volume planning and design concepts of enterprises for the storage and processing of grain.
39. All-Union Scientific Research Institute of Hydro Mechanization, Sanitary Engineering, and Special Construction Work (VNIIGS) of the USSR Ministry of Installation and Special Construction Work — technology of hydro mechanization of construction work; technology of sanitary engineering and special construction jobs; corrosion protection of industrial pipelines.
40. All-Union Scientific Research and Design-Technological Institute (VNIKT'istal'konstruktsiya) of the USSR Ministry of Installation and Special Construction Work — technology of the manufacture and application of anticorrosion protection for metallic construction design elements; control of production at plants producing metallic design elements; the development and location of plants producing metallic construction design elements.
41. All-Union Scientific Research Institute for Installation and Special Construction Work (VNIImontazhspetsstroy) of the USSR Ministry of Installation and Special Construction Work — technology, organization, and mechanization of the installation of industrial equipment; technology of the manufacture and installation of industrial pipelines and storage tanks; technology, mechanization, and automation of welding jobs in construction.
42. All-Union Scientific Research and Planning Institute for Heat Engineering Structures (VNIPI Teploproyekt) of the USSR Ministry of Installation and Special Construction Work — design and technology of building industrial furnaces; industrialization of the manufacture of heat insulation articles and installation technology; technology of the installation of heat insulation for equipment and pipelines.
43. All-Union State Scientific Research and Planning Institute of Electrical Installation (VNIIProyektelektromontazh) of the USSR Ministry of Installation and Special Construction Work — technology, organization, equipment, and means of mechanizing electrical installation work.
44. All-Union Order of the Labor Red Banner Scientific Research and Planning Institute for Comprehensive Electrification of Industrial Objects (VNITITyazhpromelektroproyekt imeni F. B. Yakubovskiy) of the USSR Ministry of Installation and Special Construction Work — electrification and automation of industrial sites; automated control systems for electrical installations; methods of automated designing of electrical engineering devices and structures.

45. All-Union Scientific Research and Planning Institute for Organization and Technology of Installation of Steel and Prefabricated Reinforced Concrete Construction Elements in Industrial Construction (VNIPIpromstal'konstruktsiya) of the USSR Ministry of Installation and Special Construction Work — organization and technology of installation of construction elements in industrial construction.
46. All-Union Scientific Research and Planning-Design Institute for Comprehensive Design of Technology for the Installation of Light and Food Industry Enterprises and Glass Pipelines (VNIPKilegprodmontazh) of the USSR Ministry of Installation and Special Construction Work — technology, organization, mechanization, and means of installing glass pipelines, reinforcement, and fittings.
47. Central Scientific Research, Experimental, and Planning Institute for Rural Construction (TsNIIEPsel'stroy) of the USSR Ministry of Rural Construction — design concepts for agricultural production buildings and enterprises to store and process grain; improvement of technology for manufacturing construction elements and articles for the construction of agricultural production buildings and structures; economics and management of rural construction; development and siting of construction industry enterprises; technology and organization of agricultural construction.
48. Central Scientific Research and Planning Institute of Model and Experimental Design of Animal Husbandry Complexes to Produce Milk, Beef, and Pork (Gipronisel'khoz) of the USSR Ministry of Agriculture — theory and methods of designing and building animal husbandry complexes to produce milk, beef, and pork.
49. Central Scientific Research and Planning Institute of Model and Experimental Design of Hothouse Combines and Agroindustrial Complexes to Process and Store Agricultural Output (Gipronisel'prom) of the USSR Ministry of Agriculture — theory and methods of designing and building hothouse combines and agroindustrial complexes to process and store agricultural output.
50. Central Scientific Research and Planning Institute of Model and Experimental Design of Poultry Factories and Farms (TsNIIEPptitseprom) of the USSR Ministry of Agriculture — theory and methods of designing and building poultry factories and farms.
51. Central Scientific Research and Planning Institutes of Model and Experimental Design of Sheep and Horse Raising Complexes, Buildings, and Structures (TsNIIEPovtsprom) of the USSR Ministry of Agriculture — theory and methods of designing and building sheep and horse raising complexes.



52. Planning and Scientific Research Institute (Krasnoyarsk Promstroyniiprojekt) of the USSR Ministry of Construction of Heavy Industry Enterprises — theory and methods of construction, design concepts of industrial and civil buildings and structures erected in the harsh climatic conditions of Siberia and the Far North on permafrost ground, with due regard for seismicity.
53. Kuznets Scientific Research Institute of Construction of Coal and Mining Enterprises (Kuzniishakhtostroy) of the USSR Ministry of the Coal Industry — technology, organization, and mechanization of the construction of open-pit coal mines; space planning and design concepts of coal industry buildings and structures.
54. All-Union Scientific Research Institute of Organization and Mechanization of Mine Construction (VNIOMShS) of the USSR Ministry of the Coal Industry — technology, organization, and mechanization of underground mine construction.
55. All-Union Order of Lenin Planning Surveying and Scientific Research Institute imeni S. Ya. Zhuk (Gidroproyekt imeni S. Ya. Zhuk) of the USSR Ministry of Power and Electrification — problems of hydro energy use of the country's water resources, designing and building multipurpose hydro engineering complexes and hydroelectric power plants.
56. All-Union Order of the Labor Red Banner Scientific Research Institute of Hydro Engineering imeni B. Ye. Vedeneyev (VNIIG imeni B. Ye. Vedeneyev) of the USSR Ministry of Power and Electrification — theory and methods of the design, construction, and operation of hydro engineering structures at hydraulic, thermal, and nuclear power plants and multipurpose hydro engineering complexes.
57. Planning and Scientific Research Institute (Far East Promstroyniiprojekt) of the USSR Ministry of Construction — theory and methods of civil and industrial construction in regions of the Far East.
58. State Planning-Surveying and Scientific Research Institute of Maritime Transport (Soyuzmorniprojekt) of the Ministry of the Maritime Fleet — maritime hydro engineering construction (including construction in Arctic conditions); deep-water dock and barrier structures; methods of calculating maritime hydroengineering structures for reliability; designs of dock structures; technology of loading and unloading work in seaports.

## II. In the Field of Building Materials

1. All-Union Scientific Research and Planning-Design Institute for Automation of Enterprises of the Building Materials Industry (VIASM) of the USSR Ministry of the Construction Materials Industry — automated control systems, specialized instruments and automated equipment for industrial processes in the production of building materials.



2. All-Union Scientific Research Institute of Factory Technology for Prefabricated Reinforced Concrete Construction Elements and Articles (VNIIZhelezobeton) of the USSR Ministry of the Construction Materials Industry — factory technology for manufacturing prefabricated reinforced concrete design elements and articles.
3. All-Union Scientific Research Institute of Non-Ore Building Materials and Hydraulic Mechanization (VNIInerud) of the USSR Ministry of the Construction Materials Industry — technology of non-ore building materials; technology of the extraction and concentration of nonmetallic building materials (graphite, kaolin, and talc).
4. All-Union State Scientific Research and Planning Institute of the Asbestos Industry (ZNIIProyektasbest) of the USSR Ministry of the Construction Materials Industry — technology of mining work in open-pit mines for the extraction of asbestos ores and concentration of them.
5. All-Union Scientific Research and Planning Institute of the Industry of Asbestos Cement Articles (VNIIProektasbesttsement) of the USSR Ministry of the Construction Materials Industry — asbestos cement articles and technology of manufacturing them.
6. All-Union Scientific Research and Planning-Design Institute of Polymer Building Materials (VNIISTroyopolimer) of the USSR Ministry of the Construction Materials Industry — polymer, soft roofing, and hydroinsulation building and sealing materials; technology of their manufacture.
7. State All-Union Scientific Research Institute of Building Materials and Design Elements imeni P. P. Budnikov (VNIISTrom imeni P. P. Budnikov) of the USSR Ministry of the Construction Materials Industry — lime, dense silicate concrete, gypsum, gypsum articles, clay bricks, ceramic wall tiles, drainage pipes; technology of their manufacture; use of ash in the production of building materials and articles.
8. All-Union Scientific Research Institute of Heat Insulation and Acoustic Building Materials and Articles (VNIITEploizolyatsiya) of the USSR Ministry of the Construction Materials Industry — heat and sound insulation materials and articles (with the exception of articles based on swollen perlite and vermiculite); technology of their manufacture.
9. All-Union Scientific Research Institute of Scientific-Technical Information and Economics of the Building Materials Industry (VNIIESM) of the USSR Ministry of the Construction Materials Industry — methods of planning, economic stimulation, and management in the building materials industry; methods of determining the efficiency of production and capital investment;

price formation; methodology and management of scientific information in the building materials industry.

10. All-Union Scientific Research and Planning-Surveying Institute for Problems of Extraction, Transportation, and Processing of Mineral Raw Materials for the Building Materials Industry (VNIPIIstroysyr'ye) of the USSR Ministry of the Construction Materials Industry — natural stone facing materials and technology of their manufacture.
11. State Scientific Research Institute of Glass (GIS) of the USSR Ministry of the Construction Materials Industry — construction glass made by the vertical drawing method, glass crystal materials, glass articles for construction, kamnelite articles, refractory articles for the glass industry; technology of their manufacture; concentration of quartz sand.
12. State All-Union Planning and Scientific Research Institute of Mica, Asbestos, Kaolin, Talc, Graphite, and Feldspar Raw Materials and other Nonmetallic Materials (Giproninemetallorud) of the USSR Ministry of the Construction Materials Industry — technology of the extraction, concentration, and processing of mica; technology of the extraction and concentration of vermiculite and feldspar.
13. Scientific Research Institute of Sanitary Engineering (NIIsantekhniki) of the USSR Ministry of the Construction Materials Industry — cast iron automated boiler aggregates and steel boiler aggregates for solid fuel with a heat productivity up to three gigacalories an hour, technology and equipment for their production; heating units made of cast iron, bimetal, and nonferrous alloys; household and sanitary accessories, cast iron and polymer plumbing pipes.
14. State Scientific Research Institute for Keramzit (NIIkeramzit) of the USSR Ministry of the Construction Materials Industry — synthetic porous aggregates and technology of their manufacture.
15. Scientific Research Institute of Sanitary Engineering and Equipping Buildings and Structures (NIIsst) of the USSR Ministry of the Construction Materials Industry — automated boilers with heat productivity up to 50,000 kilocalories per hour; steel automated boilers for liquid and gas fuel with heat productivity up to three gigacalories per hour; heating units made of steel and nonferrous metal and automated production lines for them; equipment to use secondary energy resources in the building materials industry.
16. State Scientific Research Institute of Construction Ceramics (NIIsstroykeramiki) of the USSR Ministry of the Construction Materials Industry — ceramic tiles, ceramic plumbing pipes, ceramic sanitary construction and acid-resistant articles; technology of their manufacture.

17. Scientific Research and Planning Institute for Gas Decontamination Structures, Safety Engineering, and Protection of Labor in the Building Materials Industry (NITIOTstrom) of the USSR Ministry of the Construction Materials Industry -- methods and systems of dust trapping, aspiration, and gas decontamination at enterprises of the building materials industry; safety engineering and improving working conditions.
18. State Scientific Research and Planning Institute of Autoclave-Hardening Silicate Concrete (NIPIsilikhtobeton) of the USSR Ministry of the Construction Materials Industry -- silicate bricks, chalk, and articles made of cellular concrete (except for heat insulation materials); technology of their manufacture.
19. All-Union Scientific Research Institute of Technical and Special Construction Glass (VNIItekhstroysteklo) of the USSR Ministry of Construction Materials Industry -- horizontally shaped construction glass, architectural-construction glass and articles made of it, construction fiberglass; technology of their manufacture.
20. State All-Union Scientific Research Institute of the Cement Industry (NIItsement) of the USSR Ministry of the Construction Materials Industry -- new types of cement; technology of special types of cement.
21. State Order of Labor Red Banner All-Union Planning and Scientific Research Institute of the Cement Industry (Giprotsement) of the USSR Ministry of the Construction Materials Industry -- technology of Portland cement, dry method.
22. State All-Union Institute for Planning and Scientific Research Work (Yuzhgiprotsement) of the USSR Ministry of the Construction Materials Industry -- technology of Portland cement, wet method.
23. Tashkent Scientific Research and Planning Institute of Building Materials (NIItromproyekt) of the USSR Ministry of the Construction Materials Industry -- low-temperature cement technology.
24. Scientific Research Institute of Stone and Silicates (NIIKS) of the Armenian SSR Ministry of the Construction Materials Industry -- technology of the extraction and concentration of perlite raw material; technology of extraction of natural stone for wall material.
25. Ural Scientific Research and Planning Institute of Building Materials (Ural NIIspromproyekt) of the RSFSR Ministry of the Construction Materials Industry -- vermiculite articles and technology of their manufacture; use of slag to produce building materials and articles.

26. State Scientific Research Institute of Building Materials and Articles (NIISMI) of the Ukrainian SSR Ministry of the Construction Materials Industry — heat insulation articles based on swollen perlite and technology of their manufacture.

### III. In the Field of Construction and Road Machine Building

1. All-Union Scientific Research Institute of Earthmoving Machine Building (VNIIZemmach) of the Ministry of Construction, Road, and Municipal Machine Building — continuous-action earthmoving machines for general construction and land reclamation work.
2. All-Union Scientific Research and Planning-Design Institute of Equipment for Air Conditioning and Ventilation (VNIIkonditsioner) of the Ministry of Construction, Roads, and Municipal Machine Building — equipment for air conditioning and ventilation.
3. All-Union Scientific Research and Planning-Design Institute of Mechanized and Manual Construction and Installation Tools, Vibrators, and Construction Finishing Machinery (VNIISMI) of the Ministry of Construction, Road, and Municipal Machine Building — mechanized and hand construction and installation tools, machines for construction finishing and roofing work.
4. All-Union Scientific Research Institute of Machines for the Building Materials Industry (VNIISTrommach) of the Ministry of Construction, Roads, and Municipal Machine Building — machines and equipment to produce clay and silicate bricks, ceramic, asbestos cement, and gypsum articles, and autoclave-hardening cellular and dense concrete.
5. All-Union Scientific Research Institute of Construction and Road Machine Building (VNIISTroydormash) of the Ministry of Construction, Road, and Municipal Machine Building — construction and road machines (according to the list assigned to the Ministry of Construction, Road, and Municipal Machine Building).
6. All-Union Scientific Research Institute of Cement Machine Building (VNIItsemmach) of the Ministry of Construction, Road, and Municipal Machine Building — machinery and equipment for the cement industry and lime production.
7. All-Union State Planning Institute for Construction Machine Building for Prefabricated Reinforced Concrete (Giprostrommach) of the Ministry of Construction, Road, and Municipal Machine Building — production lines, machinery and equipment for the production of prefabricated reinforced concrete.

8. All-Union State Planning-Design Institute of Machines for the Building Materials Industry (Giprostrommashina) of the Ministry of Construction, Roads, and Municipal Machine Building - machinery and equipment for the production of heat and sound insulation materials and articles made from them, rolled roofing materials, equipment for the extraction and processing of natural stone.
9. Central Planning-Design Bureau of Elevators (TsPKB po Liftam) of the Ministry of Construction, Road, and Municipal Machine Building - freight, passenger, freight-passenger, and special-purpose elevators.
10. Central Scientific Research and Planning-Design Institute of Mining Machines and Complexes for the Coal and Mining Industry and Underground Construction (TsNIipodzemmach) of the USSR Ministry of the Coal Industry - mining machines and complexes for the coal and mining industry and underground construction.

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## CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

### GOSSTROY: NATIONAL AND LOCAL OUTLOOKS

#### Statute on Gosstroy Territorial Design Organization

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[Statute on a Territorial Design Organization of the USSR Gosstroy]

[Text] By the Decree of the USSR Gosstroy of 30 March 1979, No 48, approval is given to the below-published Statute Governing a Territorial Design Organization of the USSR Gosstroy. This same decree has approved the list of territorial design organizations of the USSR Gosstroy and the list of decisions of the USSR Gosstroy which have been abrogated (these are not published in the journal).

#### Statute on a Territorial Design Organization of the USSR Gosstroy

##### 1. General Provisions

1. The territorial design organizations of the USSR Gosstroy, including those which are under the USSR ministries and departments and the Union republic gosstroyes are to be formed in accord with the Decree of the USSR Council of Ministers of 10 September 1963, No 978 "On Systematizing Construction Designing of Industrial Enterprises and Agricultural Production Facilities."

2. The territorial design organizations carry out the functions stipulated by the current statute on the territory of the republics, krais and oblasts indicated in the list of the territorial design organizations of the USSR Gosstroy.

3. The territorial design organizations carry out the duties entrusted to them from funds of the state budget in accord with the plans approved by the USSR Gosstroy. In the instances when the general designers use territorial design organizations for carrying out individual preplanning and design work, this work is carried out upon a contract concluded by the parties.

4. The territorial design organizations exercise the functions stipulated by the current statute under the procedural leadership of the USSR Gosstroy,

and annually within the established procedure as part of the annual report submit a report on the carrying out of the work entrusted to them.

5. The territorial design organizations in their activities are guided by the legislation of the USSR and the Union republic on whose territory they exercise their functions, by the decisions of the USSR Gosstroy, by other enforceable enactments, as well as by the current statute, and they strictly observe socialist legality and state discipline.

## 2. The Main Task and Functions of a Territorial Design Organization of the USSR Gosstroy

6. The main task of a territorial design organization is to carry out the uniform technical policy being implemented by the USSR Gosstroy and aimed at accelerating technical progress and improving the economic effectiveness of capital investments in construction, in the area of the rational location of industrial enterprises and facilities, the combining of the enterprises being designed into groups of enterprises with common communications, utilities and auxiliary production and systems (industrial centers)<sup>1</sup> and providing high quality of the architectural, layout and construction decisions and the economic expenditure of basic building materials.

7. In accord with the designated task, a territorial design organization is entrusted with the following functions:

- a) Elaborating, in accord with the plans approved by the USSR Gosstroy, schemes of general plans for industrial centers, as well as schemes for the location of the industrial enterprises being planned and schemes for systematizing the existing development in industrial areas of cities or other population points;<sup>2</sup>
- b) Providing unity in the construction decisions and standardization of the structural elements, buildings and installations in working out the schemes of the general plans for industrial centers and the schemes for systematizing existing development;
- c) Participation in the established procedure in working out the technical and economic bases (TEO) for the construction (reconstruction) of enterprises, buildings and installations and in selecting the construction site for the purpose of possible cooperation among auxiliary types of production and systems, utilities and communications with analogous types of production and facilities of nearby enterprises and housing development, as well as the possibility of creating industrial centers;

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<sup>1</sup>A group of such enterprises below is termed a "production center."

<sup>2</sup>The scheme for systematizing the existing development in the industrial areas of cities and other population points below will be termed: "scheme for systematizing existing development."

- d) The elaboration of proposals to organize industrial centers and their submission to the USSR Gosstroy and the Union republic gosstroy on whose territory the industrial center is to be located;
- e) The compiling of the specifications for elaborating the general plans of industrial centers and the schemes for systematizing existing development and their submission to the USSR Gosstroy and the Union republic gosstroy on whose territory the industrial center or industrial area is to be located;
- f) The submission to the superior affiliated organization of proposals relating to the section "The Elaboration of General Plans for Industrial Centers," the Plan for Compiling the Regional Development Plans and the Plans for the Planning and Development of Cities and Settlements;
- g) The incorporation, with permission from the USSR Gosstroy or Union republic gosstroy, of changes agreed upon by the concerned ministries, departments and executive committees of the soviets into the approved general plans for the industrial centers and the schemes for systematizing existing development;
- h) Participation within the established procedure in the work of the commissions created by the client ministries and departments for selecting construction sites;
- i) Coordinating the specifications for the designing of enterprises, buildings and installations regardless of their departmental affiliation (with the exception of the projects of the defense sectors of industry and special projects) prior to their approval, in the following area:
- j) Coordinating the established production capacity of the enterprise (project) being planned and its construction site with the quotas stipulated in the long-range economic and social development plans or by individual decisions of the USSR government;
- k) The soundness and technical-economic advisability of new construction in comparison with the possibility of the expansion or reconstruction of existing analogous enterprises (in the absence of TEO);
- l) The planned cooperation among the installations of auxiliary production and systems, the utilities and communications with analogous installations at nearby enterprises and housing development, as well as the possibility of combining the planned enterprises (projects) into industrial centers.

Note. The quotas for the designing of enterprises, buildings and installations are not to be coordinated with the territorial design organization when the territorial design organization has been involved in the elaborating of the TEO and selecting the construction site.

n) Participation in elaborating the plans for the development and location of the productive forces in the economic regions and Union republics, the regional development plans, as well as the general plans of cities and other population points;

n) Participation in compiling the basic provisions (technical conditions) for the construction planning of the enterprises, buildings and installations, the catalogs and range of products and articles for construction in the areas where the territorial design organization is to operate;

o) Carrying out work to discover and study alternative territories for industrial construction and the compiling of reference material on the basis of the obtained data;

p) Control over the execution of the decisions taken in the approved general plans of industrial centers and the schemes for systematizing existing development, and the submission of information on the course of their implementation annually within the established procedure;

q) Selective control on questions relating to the competence of a territorial design organization of the conformity of the elaborated design specifications for the construction of enterprises, buildings and installations to the decisions of the TEO and the approved specifications for designing, as well as to the Technical Rules for the Economic Expenditure of Basic Building Materials as approved by the USSR Gosstroy. The territorial design organization informs the USSR Gosstroy and the USSR Stroybank (USSR Gosbank) of all deviations from the TEO, the design specifications and the decisions taken in the approved general plans of the industrial centers and the schemes for systematizing existing development, and should inform the USSR Gosstroy of a discrepancy with the requirements of the Technical Rules for the Economic Expenditure of Basic Building Materials;

r) Under contract with the head builder of the common-center projects (or its general designer), the elaboration of a draft detailed plan of the industrial center and a working (actual) general plan of the industrial center.

8. The territorial design organization bears responsibility for the high-quality and prompt execution of the tasks and functions entrusted to it by the Current Statute.

3. Rights of a Territorial Design Organization of the USSR Gosstroy

9. A territorial design organization is given the right:

a) To become acquainted in the ministries, departments, the executive committees of the soviets and their departmental organizations, institutions and at enterprises, with the materials essential for carrying out the tasks and functions entrusted to it, and to obtain data for working out the general plans of the industrial centers, the schemes for the location of planned industrial enterprises and the schemes for systematizing existing development;

- b) To demand that the enterprises, organizations and institutions submit information and materials necessary for working out the TEO in the established procedure and for coordinating the specifications for designing, as well as the planning specifications for building industrial enterprises, buildings and installations for carrying out the selective check;
- c) To involve in the established procedure the urban development, specialized and sectorial engineering planning organizations in working out the appropriate sections of the general plans of the industrial centers, the schemes for the placement of the industrial enterprises being designed and the schemes for systematizing existing development, as well as in controlling the fulfillment of the decisions taken in these schemes and plans;
- d) To participate in the review by the ministries, departments and soviet executive committees of the TEO or the construction (reconstruction) of industrial enterprises, buildings and installations, the general plans of industrial centers and the schemes for the systematization of existing development, as well as the specifications for designing, in settling the question of the location of industrial enterprises and their utilities support, the use of basic building materials, the establishing of the sizes of the health-protective zones and the observance of the current legislation of the USSR and Union republics in the area of natural conservation.

List of Territorial Design Organizations of the USSR Gosstroy with the Indicating of Their Departmental Affiliation and Location. In the Parentheses are Given the Republics, Krays and Oblasts on the Territory of Which These Organizations Exercise Their Functions

#### RSFSR

1. The State Order of the Red Banner Design Institute Leningrad Promstroyproyekt [Industrial Construction Design] of the USSR Gosstroy, Leningrad (Komi ASSR, Karelian ASSR, Murmanskaya, Arkhangel'skaya and Kaliningradskaya oblasts, the Cherepovets Industrial Center of Vologodskaya Oblast).
2. The Design Institute No 1 of the USSR Gosstroy, Leningrad (Leningrad, Novgorodskaya, Pskovskaya oblasts and Vologodskaya Oblast without the Cherepovets Industrial Center).
3. The Order of the Red Banner State Design Institute Promstroyproyekt of the USSR Gosstroy, Moscow (Moscow, Moscow Oblast, Kalininskaya, Smolenskaya and Ryazanskaya oblasts).
4. The Goskhimproyekt [State Chemical Design] Institute of the USSR Gosstroy, Moscow (Bryanskaya, Kaluzhskaya, Orlovskaya and Tul'skaya oblasts).
5. The Gor'kiy Promstroyproyekt Institute of the USSR Ministry of Construction, Gor'kiy (Mari, Chuvash and Mordovian ASSRs, Gor'kovskaya and Kirovskaya oblasts).



6. The Volzhsk Division of the Goskhimprojekt Institute of the USSR Gosstroy, Volzhskiy (Kalmyk ASSR, Astrakhanskaya and Volgogradskaya oblasts).
7. The State Kuybyshev Promstroyprojekt Institute of the USSR Ministry of Industrial Construction, Kuybyshev (Tatar ASSR, Kuybyshevskaya Oblast).
8. Saratovpromprojekt [Saratov State Industrial Design] Institute of the USSR Ministry of Construction, Saratov (Saratovskaya, Penzenskaya and Ul'yanovskaya oblasts).
9. Giproprom [State Industrial Design Institute] of the USSR Ministry of Construction, Voronezh (Belgorodskaya, Voronezhskaya, Kurskaya, Lipetskaya and Tambovskaya oblasts).
10. The Rostov Promstroynilprojekt [Design and Scientific Research Institute for Industrial Construction] of the USSR Gosstroy, Rostov-na-Donu (Rostovskaya Oblast, Krasnodarskiy and Stavropol'skiy krays, Dagestan, Kabardino-Balkar, Northern Ossetian and Checheno-Ingush ASSRs).
11. Chelyabinsk Promstroynilprojekt [State Design and Scientific Research Institute for Industrial Construction] of the USSR Ministry of Heavy Construction, Chelyabinsk (Kurganskaya, Orenburgskaya and Chelyabinskaya oblasts).
12. Permprojekt [Perm' Industrial Design Institute] of the USSR Ministry of Industrial Construction, Perm' (Udmurt ASSR and Permskaya Oblast).
13. Urals Promstroynilprojekt of the USSR Gosstroy, Sverdlovsk (Sverdlovskaya Oblast).
14. Design Institute No 2 of the USSR Gosstroy, Moscow (Vladimirskaya, Ivanovskaya, Kostromskaya and Yaroslavl'skaya oblasts, Khanty-Mansi and Yamalo-Nenets national okrugs).
15. Tyumen' Promstroyprojekt of the USSR Ministry of Industrial Construction, Tyumen' (Tyumenskaya Oblast, with the exception of the Khanty-Mansi and Yamalo-Nenets national okrugs).
16. The Ufa Affiliate of the Tyumen' Promstroynilprojekt Institute of the USSR Ministry of Industrial Construction, Ufa (Bashkir ASSR).
17. The Siberian Promstroyprojekt of the USSR Gosstroy, Novokuznetsk (Altayskiy Kray and Kemerovskaya Oblast).
18. The Novosibirsk Promstroyprojekt of the USSR Ministry of Construction, Novosibirsk (Novosibirskaya, Omskaya and Tomskaya oblasts).
19. The Krasnoyarsk Promstroynilprojekt of the USSR Ministry of Heavy Construction, Krasnoyarsk (Tuva ASSR and Krasnoyarskiy Kray).

20. The Irkutsk Promstroyproyekt of the USSR Gosstroy, Irkutsk (Buryat ASSR, Yakut ASSR, Irkutskaya and Chitinskaya oblasts).

21. Khabarovskpromproyekt [Khabarovsk Industrial Design Institute] of the USSR Ministry of Heavy Construction, Khabarovsk (Khabarovskiy Kray and Amurskaya Oblast).

22. Far Eastern Promstroyniiprojekt of the USSR Ministry of Construction, Vladivostok (Primorskiy Kray, Sakhalinskaya and Kamchatskaya oblasts).

23. Dal'stroyproyekt [Far Eastern State Design Institute for Construction] of the USSR Ministry of Nonferrous Metallurgy, Magadan (Magadanskaya Oblast).

#### Ukraine

24. Khar'kov Promstroyniiprojekt of the USSR Gosstroy, Khar'kov (Khar'kovskaya, Poltavskaya, Sumskaya and Chernigovskaya oblasts).

25. Dnepr Promstroyproyekt of the USSR Gosstroy, Dnepropetrovsk (Dnepropetrovskaya and Kirovogradskaya oblasts).

26. Zaporozh'ye Division of Dnepr Promstroyproyekt of the USSR Gosstroy, Zaporozh'ye (Zaporozhskaya, Krymskaya, Khersonskaya and Cherkasskaya oblasts).

27. Donetsk Promstroyniiprojekt of the USSR Gosstroy, Donetsk (Donetskaya and Voroshilovgradskaya oblasts).

28. Kiev Promstroyproyekt of the USSR Gosstroy, Kiev (Kiev, Zhitomirskaya, Vinnitskaya, Khmel'nitskaya, Ternopol'skaya and Chernovitskaya oblasts).

29. Odessa Design Institute No 3 of the USSR Ministry of Industrial Construction, Odessa (Odesskaya and Nikolayevskaya oblasts).

30. L'vov Affiliate of the Odessa Design Institute No 3 of the USSR Ministry of Industrial Construction, L'vov (L'vovskaya, Volynskaya, Zakarpatskaya, Ivano-Frankovskaya and Rovenskaya oblasts).

#### Belorussia

31. Belpromproyekt [Belorussian State Industrial Design Institute] of the Belorussian Gosstroy, Minsk (Belorussia).

#### Uzbekistan and Turkmenia

32. Uzgiptotyazhprom [Uzbek State Design Institute for Heavy Industry] of the USSR Gosstroy, Tashkent (Uzbekistan and Turkmenia).

#### Kazakhstan

33. Kazakh Promstroyniiprojekt of the USSR Gosstroy, Alma-Ata (Kazakhstan, with the exception of Karagandinskaya and Dzhezkazganskaya oblasts).

34. Karaganda Promstroyproyekt of the USSR Ministry of Heavy Construction, Karaganda (Karagandinskaya and Dzhezkazganskaya oblasts).

#### Georgia

35. Gruzgosproyekt [Georgian State Design Institute] of the USSR Ministry of Construction, Tbilisi (Georgia).

#### Azerbaijan

36. Azgospromproyekt [Azerbaijan State Industrial Design Institute] of the USSR Gosstroy, Baku (Azerbaijan).

#### Lithuania

37. Litpromproyekt [Lithuanian Institute for the Designing of Industrial Construction] of the Lithuanian Gosstroy, Kaunas (Lithuania).

#### Moldavia

38. Moldgiproprom [Moldavian State Design Institute for Industrial Construction] of the Moldavian Gosstroy, Kishinev (Moldavia).

#### Latvia

39. Latgiproprom [Latvian State Institute for the Designing of Industrial Enterprises] of the Latvian Gosstroy, Riga (Latvia).

#### Kirgizia

40. Kirgizpromproyekt [Kirgiz State Design Institute for Industrial Enterprises] of the USSR Ministry of Construction, Frunze (Kirgizia).

#### Tadzhikistan

41. Tadzhikgiproprom [Tadzhik State Design Institute for Industrial Enterprises] of the Tadzhik Gosstroy, Dushanbe (Tadzhikistan).

#### Armenia

42. Armapromproyekt [Armenian State Design Institute for Industrial Enterprises] of the Armenian Gosstroy, Yerevan (Armenia).

Estonia

43. Estpromproyekt [Estonian State Design Institute for Industrial Enterprises] of the Estonian Gosstroy, Tallin (Estonia).

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#### Activities of RSFSR Gosstroy

Moscow BYULLETEN' STROITEL'NOY TEKHNIKI in Russian No 7, Jul 79 pp 26-29

[Article by N. P. Zhukova: "At the RSFSR Gosstroy"]

[Text] On the work of SibZNIIEPsel'stroy [Siberian Zonal Scientific Research Institute for the Economics and Planning of Rural Construction]. The RSFSR Gosstroy has examined the question of the production and technical activities and the creative focus of SibZNIIEPsel'stroy. In the decision approved the RSFSR Gosstroy has noted that the institute basically provides design and estimate specifications for the construction of rural production, housing and cultural-service projects, as well as the elaboration of the designing and planning specifications for building settlements in rural localities and other oblasts of Western Siberia.

Being a zonal institute, SibZNIIEPsel'stroy carries out a uniform technical policy in the zone, in regularly holding zonal scientific and technical councils; it reviews the plans for building agricultural projects worked out by the institutes located in this zone; it compiles zonal lists of projects, catalogues of industrial articles and uniform technical conditions for construction designing, as well as proposals for incorporating standard and experimental designing in the plan; it disseminates the materials elaborated by all the institutes of the zone for their wide use; it prepares joint decisions on urgent technical questions.

The institute also conducts scientific research in the area of the planning and location of agroindustrial complexes, the effectiveness of design decisions, the protection of the air basin, the creation of an optimum microclimate in livestock barns, the utilization of waste fluids, and increasing the durability of livestock buildings.

In 1971-1978, the institute worked out 307 plans for the planning and layout of sovkhoz settlements and other population points, and also prepared the technical specifications for their complete development. The plans provided architectural, layout and utility solutions which helped to turn the settlements into well-provided for population points with good conditions for the labor, everyday life and recreation of the population. A number of plans worked out by the institute received diplomas, medals and certificates of the USSR VDNKh [Exhibit of National Economic Achievements].

In 1978, a list of plans for agricultural production complexes, buildings and installations was drawn up for construction in the 10th and 11th five-year plans for the zone of Western Siberia. Since January 1979, the planning of agricultural projects has been carried out only under the plans incorporated in the zonal list.

During the years of the ninth and tenth five-year plans, 25 major industrial enterprises were built using plans worked out by the institute, including eight dairy complexes, four pig complexes, one sheep complex and five beef complexes, four egg poultry farms, a poultry meat farm and two hothouse combines.

In accord with the 1979 construction plan and the approved schedules, the institute provided the customers with technical specifications before 1 September 1978. However, as a check has shown, there is a number of shortcomings in the work of the institute. The level of the architectural and layout solutions is not sufficiently high for the development of the sovkhoz settlements, as well as their production zones and landscaping; deviations from the current construction standards and rules are permitted; there was the incorrect setting of the amount of construction-installation work; work was poorly organized in providing technical aid to the operating personnel in bringing the capacity of the completed livestock complexes up to the planned indicators, as well as for analyzing the operating results of these projects; control was carried out unsatisfactorily over the elaborating of plans for land reclamation and the creation of a feed supply for the complexes; computer programs are being little introduced into planning practices for the economic calculations and the planning of designing; insufficient attention is paid to broadening the range of standard elements, tables, and plans for stock which requires merely insignificant adjustment by the production divisions.

The RSFSR Gosstroy has obliged the institute's leadership to carry out the following: To take effective measures to eliminate the shortcomings noted in the decision; to significantly improve the quality of the development plans for the rural population points, to review the plans turned out on the question of the soundness of the approved structure for housing development and solving the questions for developing the private subsidiary farm, to prepare proposals for correcting these plans, to give serious attention to the amenities of the settlements and their architectural design; to carry out the quotas for reducing the estimated cost of construction during the Tenth Five-Year Plan; for saving ferrous metals, building materials and introducing industrially-made light structural elements; to strengthen developer supervision over the construction of large production projects and public buildings; to staff the scientific subdivision with highly skilled specialists, to improve the organization of scientific research, and accelerate the introduction of the developments of the scientific subdivision at the institute into designing practices.



On the development of industrial zones in Leningrad. Having reviewed the experience of the development of industrial zones in Leningrad, the RSFSR Gosstroy has noted that the execution of functions by the Leningorispolkom [Leningrad City Executive Committee] as the head builder for the construction of projects common to the enterprises located in the industrial zones of the city, and by Design Institute No 1 as the general designer for these projects, has accelerated the receipt of funds from the debtor enterprises, and as a consequence of this, the annual amount of construction.

Of the 52 industrial and communal-warehouse zones located in the city, at 11 development is virtually complete, in 25 reconstruction of the existing enterprises and the upgrading of utilities and facilities are being carried out, while 16 are being newly developed and built up.

About 75-80 percent of the newly built or reconstructed enterprises are located within the industrial zones occupying one-quarter of the total territory of the city. The remaining enterprises which do not have a harmful influence on the environment are being located in the existing or planned residential regions of the city. The forming of the industrial zones is being carried out by the GlavAPU [Main Architectural and Planning Administration] together with Design Institute No 1. The functions of the head builder are being carried out by the Administration for the Designing and Construction of Common Projects of Industrial Zones which has been set up within GlavUKSA [?Main Administration for Capital Construction and Architecture], while Design Institute No 1 is carrying out the functions of the general designer.

The effectiveness of the work carried out by Leningorispolkom to shape and develop the industrial zones has been reduced by a number of shortcomings which have occurred in the organization and execution of this work, mainly: The absence of centralized and prompt information for the planned amounts of construction by the ministries and departments in the industrial zones of the city; the insufficient and delayed allocating of proportionally-shared funds by the ministries and departments and turned over by them for building projects common to the enterprises located in the industrial zones of Leningrad; the absence of limits in the annual plans of contracting work of the USSR Ministry of Power and Electrification, the USSR Ministry of Transport Construction and the USSR Ministry of Construction for the Leningorispolkom to build projects common to the enterprises located in the industrial zones of the city; the failure to provide funds for design and research work to elaborate the design and estimate specifications for the construction of these projects;

The RSFSR Gosstroy has approved the work carried out by Leningorispolkom and Design Institute No 1 to locate the enterprises as part of the city's industrial zones, for designing and building in them projects which are common to the enterprises located in these zones, and has outlined measures aimed at eliminating the designated shortcomings.

The RSFSR Gosstroy has recognized the necessity to request that the Leningorispolkom instruct the Leningrad City Planning Commission to be constantly involved in the work of forming the industrial centers and the industrial zones as a whole, as well as to take into account in working out the long-range plans for the economic and social development of the city and the annual capital construction plans, the necessary capital investments for building the projects to be located within the industrial centers, as well as the allocating for proportional participation in the construction of the projects common to the enterprises located in the industrial zones; to prevent the improper expenditure of funds turned over to it for proportional participation in the construction of projects common to the enterprises and located in the industrial zones; to involve the construction organizations of the ministries carrying out work in Leningrad in building the projects common to the enterprises and located in the industrial zones; to take the necessary measures to accelerate the designing and construction of common projects for the enterprises located in the industrial zones of the city; to examine the question of organizing within the GlavAPU a specialized subdivision for the formation of industrial centers, for coordinating the formation and issuing of authorization papers for allocating plots, and for designing and building common-center projects and the projects of the developers.

The RSFSR Gosstroy has proposed that the oblast and kray administrations and departments for construction and architectural affairs study the experience of the GlavAPU of Leningorispolkom in forming industrial zones within the system of urban development for use in practical work. The Department for Regional Planning and Industrial Centers of the RSFSR Gosstroy has been instructed to provide constant help to Leningorispolkom in solving the questions arising in the process of their execution of functions as the head developer in building the projects common to the enterprises located in the industrial zones of Leningrad.

On the expert evaluation of plans. Having reviewed the results of the state expert evaluation of plans, the RSFSR Gosstroy noted that in 1978, the Main Administration for State Expert Evaluation of Plans [GUGEP], together with the departments, examined 443 plans for the construction of industrial projects, housing and civil buildings, communal installations, roads, bridges and other projects with a total estimated construction cost of 2,560,370,000 rubles, and 56 technical and economic studies with an estimated cost of 1,709,270,000 rubles. Of the plans reviewed in 1978, 233 plans were recommended for approval with a total estimated value of 1,947,290,000 rubles, and 32 technical and economic studies with an estimated value of 713,640,000 rubles. The total reduction in the estimated cost of construction was 71.72 million rubles (3.5 percent of the announced) with a simultaneous improvement in the technical and economic indicators.

The improvement in the planning decisions in the designated plans also made it possible to reduce the demand for a number of building materials, including 10,421 tons of metal and 13,032 tons of cement.

As the state expert evaluation of plans showed, a number of design organizations is still turning out poor quality plans, as a result of which in 1978 only 65 plans were recommended for approval without further work with an evaluation of "good" and "excellent," and this was 14.6 percent of the total number reviewed. It is also essential to note the unacceptably low quality of the examined standard plans approved by the ministries.

The GUGEP has systematically carried out work to provide procedural aid to the expert subdivisions of the RSFSR ministries and departments, the kray and oblast executive committees by organizing meetings and seminars, examinations on the spot, selective control over the quality of the approved plans, and carrying out measures to improve the skills of the experts.

Upon the initiative of the GUGEP and the Department of Utility Works of Cities and Rural Population Points, the RSFSR Ministry of the Housing and Communal System reviewed the question of the quality of the design and estimate specifications being worked out by the departmental institutes.

The RSFSR Gosstroy has obliged the GUGEP, the Department for Utility Works of the Cities and Rural Population Points and the Department for Transport Installations, Flooding Zones and Engineer Protection to pay attention in the expert evaluation of design and estimate specifications to improving the effectiveness of capital investments, to introducing the achievements of scientific and technical progress, the use of progressive designs and highly productive equipment, to lower material and labor intensiveness, and to reduce the demand for energy resources; to strengthen control over the carrying out of the expert evaluation of the plans and estimates; to expand selective quality control for the standard plans being approved by the ministries, in paying particular attention to their economy, and their conformity to the present achievements of science and technology; to provide preferential review of plans for the construction of projects in the zone of the BAM [Baykal-Amur Mainline] and the Nonchernozem Zone of the RSFSR; to increase the demands made upon the quality of the architectural and layout decisions in examining the plans for buildings and installations under construction in Moscow, in carrying out the tasks of converting the capital into an exemplary communist city; to continue procedural work with the expert subdivisions of the RSFSR ministries and departments, the councils of ministers of the autonomous republics, and the kray and oblast executive committees; to continue work with the RSFSR ministries and departments, the councils of ministers of the autonomous republics, the kray and oblast executive committees, the Moscow city and Leningrad city executive committees in the area of reducing estimated construction costs by 3-5 percent.

The RSFSR Gosstroy recommended to the RSFSR ministries and departments and the RSFSR state committees that measures be taken to improve the quality of the plans, particularly the standard ones being worked out by the departmental design organizations, and to further strengthen the expert subdivisions.

Approval of a standard plan. The RSFSR Gosstroy has approved a standard plan worked out by the Design Bureau for Reinforced Concrete of the RSFSR Gosstroy (for the stage of a technical working plan) for children's nursery-creches for 280 places in the designs of the 125 and 75 series for construction in climatic regions II and III with the usual geological conditions.

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#### Activities of Moldavian Gosstroy

Moscow BYULLETEN' STROITEL'NOY TEKHNIKI in Russian No 7, Jul 79 pp 30-32

[Article by Ye. S. Vaynberg: "At the Moldavian Gosstroy"]

[Text] On the realization of the Kishinev general plan.

The Moldavian Gosstroy together with the Kishinev City Executive Committee has held a conference on the question "On the Course of Implementing the General Plan for the City of Kishinev." At the conference it was pointed out that since 1969 (the year the Kishinev general plan was approved) the basic directions have been successfully carried out in solving the socio-political, technical-economic and architectural problems related to developing a large modern city with a population of 500,000 persons by the end of 1980. New large residential areas are being created in Botanik, Ryshkanovka, Boyukany, and Budeshty with a population of 100,000-150,000 persons, and each with a developed system of cultural and domestic services, trade, public dining and transport.

The industry of the city is developing actively and ahead of the set pace. The formation of the Novo-Chekany, Muncheshty, Skulyan and other industrial zones of the city is being completed. Plans have been worked out for the detailed layout of all residential areas, the basic arteries and prospects [boulevards] of the city, and their development is being carried out. Over the period from 1967-1978, the available housing in the city has increased by 2-fold. The system of cultural and service institutions has been significantly developed. Construction has been completed on the Oktombriye Palace, the republic hospital, the House of Political Education, and a number of hospitals and movie theaters. An opera and ballet theater, a circus building, a department store, a Palace of Railroad workers and other buildings are under construction.

At the same time substantial shortcomings have been noted in the questions of the city's general plan. Proper attention has not been paid to the concentrating of capital investments in housing construction, and there have been the designing and construction of residential buildings selectively, on scattered cleared sites. Development still suffers from monotony and in individual instances is not attractive. The level of public works is insufficient, and the questions of the development and placement of small architectural forms have been poorly solved. The construction of roads



and the development of municipal transport lag behind the building up of the city. The necessity is felt of creating a direct link of the city's residential districts without going through the center. The questions of increasing the capacity of the water system, the sewage treatment works, electric supply and central heating are being solved unsatisfactorily.

The Moldavian Gosstroy and the Kishinev City Executive Committee have proved a joint decree aimed at eliminating the shortcomings in the designing and development of the city. It has been decided in 1979-1981 to work out a new general plan for the development of Kishinev up to the year 2010, as well as focus efforts on working out the plans for the major arteries of the city, the squares, residential and industrial complexes on a high architectural level.

For reducing material intensiveness in designing. The Moldavian Gosstroy has reviewed the proposal of Moldgiprostroy [Moldavian State Design Institute for Construction] to reduce material intensiveness in designing the continuous footings of residential and civil buildings in the republic. The proposed solution is based upon the rational use of the range of slabs for reinforced concrete continuous footings developed in the republic under the series 1.112-1 and, consequently, does not require any capital expenditures and will not bring about an increase in labor intensiveness in carrying out construction-installation work.

The Moldavian Gosstroy considers it advisable to introduce the designated proposal into the work practices of the republic design institutes. Moldgiprostroy has been instructed to reproduce the "Recommendations on Reducing Material Intensiveness in Designing Prefabricated Reinforced Concrete Continuous Footings for Residential and Public Buildings in Moldavia," and to send them out to the republic design organizations.

Approval of new standard plans. By an order of the Moldavian Gosplan, the range of types and the composition of series have been approved for the standard plans of residential buildings for individual developers and unheated structures erected at the expense of the public. Moldgiprograzhdanstroy [Moldavian State Institute for the Designing of Civil and Rural Construction] is reproducing the designated range and is sending it out to the republic design organizations and rayon architects.

Approval of normative documents. By the order of the Moldavian Gosstroy, Technical Rules for the Acceptance and Evaluation of the Work Quality in Construction, Major and Medium Overhaul of Roads and Road Installations (RSN 18-79) have been approved and put into effect.

The Departmental Construction Standards for the Construction of Roads (VSN 3-74) approved by the Moldavian Ministry of Highways are now considered invalid.



By an order of the Moldavian Gosstroy, the Catalogue of Prefabricated Reinforced Concrete Products for Public Frame-Panel Buildings of the 1000-3m/78 Series has been approved and put into effect.

The order of the Moldavian Gosstroy of 27 June 1975, No 41, on approving the Catalogue of the Series 1000-3m of the 1975 issue is considered abrogated.

By an order of the Moldavian Gosstroy, the Catalogue of Prefabricated Reinforced Concrete Products for Residential and Public Buildings with Walls of Sawn Limestone Blocks of the Series 1000-2m/1 has been approved and put into effect.

The Order of the Moldavian Gosstroy of 5 February 1973, No 5, on approving the Catalogue for the Series 1000-2m of the 1973 issue is considered invalid.

By an order of the Moldavian Gosstroy, comprehensive individual rates have been approved and are in effect since 1 February 1979 for the following:

- a) Floor construction for residential buildings (under the series 2.140-1, No 6)--KYeR-1/78;
- b) Gypsum-concrete rolled partition panels--KYeR-5-9.

By the order of the Moldavian Gosstroy, price lists have been approved and put into effect for the construction of:

- a) A warehouse for loose and granulated feed for 240 tons. Standard Plan No 813-31/72, No IX;
- b) A warehouse for toxic chemicals and nitrate with a capacity of 470 tons. Standard Plan No 705-2-21, No X;
- c) An unheated warehouse for storing equipment and supplies with an area of 350 m<sup>2</sup>. Standard Plan No 709-114, No XI;
- d) A slaughtering and sanitary station for cattle, pigs and sheep. Standard Plan No 807-77, No XII;
- e) A manure storage container with a capacity of 2,000 and 4,500 tons. Standard Plan No 801-315, No XIII.

In accord with points 20 and 21 of the State Standard 1-4-68 "Procedure for the Elaboration and Approval of Enterprise Standards," the Moldavian Gosstroy has established the following procedure for the approval and registration of enterprise standards (STP) in the subordinate design institutes:

- a) The enterprise standards are worked out, approved and recorded by the institute which has worked out the STP;

b) The institutes are to be assigned the following index numbers: 01 for Moldgiprostroy, 02 for Moldgiprograzhdansel'stroy, 03 for Moldgiprom [?Moldavian State Design Institute for Industrial Enterprises], and 04 to MoldGIINTIZ [expansion unknown].

After approval, the developer institute submits one copy of the STP to the remaining three institutes and three copies to the department for new equipment of the Moldavian Gosstroy.

For the purposes of systematizing the submitting of materials for approval, the Moldavian Gosstroy and the Moldavian Ministry of Agriculture have drawn up a list of the basic documents required in settling the question of confiscating land from citizens in the cities, the urban type settlements and other population points of Moldavia involving the demolition of structures and the uprooting of orchards and vineyards, as well as the preliminary agreement on the place for locating the project and the obtaining of the right to carry out the design work, and for the final agreement to confiscate the land for building the project.

The materials drawn up in the designated order are submitted to the Moldavian Gosstroy and to the Moldavian Ministry of Agriculture for approval within 15 days at the start of each quarter.

Design developments. Moldgiprom has worked out and approved the following:

"List of Measures Bringing About a Reduction in the Expenditure of Basic Building Materials in Designing in 1979-1980." The materials provide a savings of basic building materials and other material resources, a reduction in the weight and material intensiveness of structural elements, as well as a reduction in the built up territory of industrial enterprises, utility networks and communications;

"Instructions on Compiling the 'Technical Conditions for Construction Designing' and the Initial Data for Compiling Estimate Specifications for Working Out the Section 'Organization of Construction' in the Technical Working (Technical) Plans."

The enterprise standard "Quality Control System for Designing. Statute on a 'Quality Hour' Conference at an Institute and in Production Subdivisions."

Kishinevgorproyekt [?Design Institute for the City of Kishinev] has worked out a program for calculating beams lying on an elastic base for the third-generation computers. Using this program it is possible to calculate beams of an arbitrary plan view resting completely or partially on a base, conventional beams with arbitrary boundary conditions, and beams on piling supports. The program virtually has no quantitative constraints. One of its most important advantages is that the results of the calculation are not only the shifts and stresses in the beam but also its reinforcing.

The institute has also worked out a program for calculating flat elements of the diaphragm or wall type for the effect of static loads using the finite element method. The program is particularly effective with sharply different strength characteristics of the individual elements of the calculated system. The displacements and tensions in the element are the result of the calculation.

In accord with the Construction Standards and Rules II-21-75, the institute has worked out an aid for the designing of reinforced concrete elements working under eccentric compression and bending. The aid consists of the following sections: The Elaboration of Reinforcing Tables for Eccentrically Compressed Rectangular Elements of Unstressed Reinforcing; The Elaboration of the Program on a Minsk-32 Computer for Calculating the Reinforced Concrete Elements for the Effect of a Bend with Torsion; The Compilation of the Program, Graphs and Recommendations for the Comprehensive Calculation of Inserts for Reinforced Concrete Elements; The Elaboration of Tables for Selecting the Longitudinal Reinforcing in Rectangular Sections of Reinforced Concrete Flexible Elements with Stressed Reinforcing; The Elaboration of Tables for Selecting the Rectangular Sections of Beams and Columns for Transverse Force.

The institute has introduced a cardless system for using the materials of the library, and this provides for the introduction of cards (tickets) out of thick cardboard with a small pocket glued inside instead of the traditional reader's card. The tickets are placed in alphabetical order according to the last name of the user. The reader fills out the request for the requested material giving the code and the name of the source, and puts the date and his name on the book card of the copy taken. The book card is inserted in the reader's ticket and the request put in the pocket of the cardboard substitute is placed on the shelf in the place of the given-out source.

The introduction of the cardless system has reduced the time for serving the readers by the filling out of the cardholder's documents, and has made it possible to establish more quickly who has the absent material. This system is particularly convenient in handling normative technical materials.

Kolkhozstroyproyekt [?Design Institute for Kolkhoz Construction] has worked out the plans for the reuse of the tobacco drying complexes with a productivity of 48, 96 and 192 tons of dry tobacco per season (78 days) on the basis of the TU 801-78 bulk tobacco dryer developed by the PKTI [design and engineering institute] of Moldsel'khozproyekt [?Moldavian Design Institute for Agriculture]. The complexes include 6, 12 or 24 TU 801-78 units, a grader, a diesel fuel storage tank, service facilities, a boiler and a number of auxiliary buildings and installations. A particular feature of the TU 801-78 units is their high automation and efficiency of the drying processes, the low proportional expenditures of fuel and electric power, the saving of metal and reinforced concrete by using wood, as well as the possibility of their centralized industrial manufacturing, as this greatly reduces the time for completing the complexes.

The institute has introduced the foreman system which is designed for drawing up the institute's design plan broken down for the structural subdivisions for the year by the months with correcting as is necessary. Actual fulfillment by the planned date is accounted for using a computer. The use of the system helps in evenly distributing the work in the institute and in precisely coordinating work between the subdivisions.

The system can be employed in institutes with an interdisciplinary and specialized management system.

In 1978, MoldGIINTIZ introduced into surveying practices the testing of ground using vane logging for determining the strength characteristics of weak waterlogged grounds in their natural stratification. The essence of the method consists in the shearing of a certain volume of dirt along the surface of a cylinder by turning a cross-shaped tip sunk into the mass by a forward motion. For clay soils of little-plastic and fluid consistency, this testing is the only method for determining the resistance to their shift, since the sampling of ground of an undisturbed structure from the holes is impossible due to the absence of reliable dirt pumps, and is very difficult out of the pits due to the influx of water, and is expensive.

For the purpose of improving the quality of technical standards setting and for reducing the time for drawing up orders and field acceptance of topographic and geodetic work, the institute has worked out a "Collection of Time Standards for Topographic Work in Cities, Settlements and on the Territory of an Industrial Site of Moldavia" and "Collection of Sample Standards for Determining the Category of Difficulty for Intradistrict Surveying on a Scale of 1:500."

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#### Activities of Estonian Gosstroy

Moscow BYULLETEN' STROITEL'NOY TEKHNIKI in Russian No 7, Jul 79 pp 32-33

[Article by L. M. Volkov, head of the Architecture Department of the Scientific Research Institute for Construction of the Estonian Gosstroy and candidate of architecture: "At the Estonian Gosstroy"]

[Text] The regional settlement scheme (RSR) for Estonia has been worked out up to the year 2000 on the basis of the specific-program and systems approach proposed by the TsNIIPgradostroitel'stva [Central Scientific Research Institute for Urban Development], and generalizes the general scheme for the settlement of the USSR within the republic.

In shaping the scheme under the conditions of the high level of industrial and agricultural production, basic attention has been given to social questions. The solving of the economic and ecological questions should provide the fullest implementation of the social program.



As a result of studying the development trends in settlement in conjunction with the economic and natural system of the region and in comparing them with the forecasts for the change in the conditions for the transformation of settlement, a development variation was disclosed which provides substantial advantages both in improving the social infrastructure and the ecological system, as well as in developing the productive forces and providing a significant economic effect in implementing it.

The further development of the settlement system has been based upon the principle proposed by the TsNIIPgradostroitel'stva of forming group systems of population points (GSMN). Considering the existing network of cities, their sociocultural potential, the natural, transport and other conditions as well as the prospects for the growth of the population and the development of production on the republic's territory, it has been judged advisable to form two large (with centers in Tallin and Tartu) group systems, two medium sized ones (with centers in Kokhtla-Yarva and Pyarnu) and one small one (with a center in Kingisepp). A particular feature of organizing the large group systems is that they consist of several subsystems unified by the most developed and significant system into a single whole. Such an organization helps to provide the population with various types of activities. An accentuated focus on the development of the subsystems and their centers contributes to a harmonious rise in the standard of living on the entire territory of the republic, the elimination of an excessive concentration of production and population in the large cities, it provides a rational utilization of the natural resources and an improvement in the ecological situation, as well as leads to a decline in the urban development expenditures because of the reduction in the amount of expensive reconstruction measures.

The RSR provides substantial development of rural settlement. Of the more than 3,000 existing rural settlements, 233 are to undergo primary development. These settlements have a good socioeconomic base, and excel in an advantageous economic-geographic situation and favorable natural conditions. In certain of these settlements, the number of inhabitants is to rise up to 1,500-2,000. Of the largest settlements (along with a number of small towns and urban type settlements), it has been proposed that a network of interfarm centers be formed in which they plan to concentrate the interkolkhoz production enterprises and the institutions of the service sphere.

Around 250 rural settlements have been put in the group of limited development. The socioeconomic base of these settlements does not guarantee their significant growth, as a result of which by the end of the designated period their population will increase to not more than 500-600 persons in each.

A large group is comprised of unpromising rural settlements (around 60 percent of the total number of rural population points in which live 40-45 percent of the rural population). The small agricultural production enterprises and institutions of the service sphere form the socioeconomic base of these settlements. The settlements have no prospects for further substantial development, however in the period being planned they are essential



for the national economy and the rural population for the fullest utilization of agricultural resources.

The so-called residential villages which have neither production nor service functions are without prospect. This group encompasses around 20 percent of the rural settlements in which live 7-10 percent of the rural inhabitants. Over the designated period many of them can be eliminated.

By organizing common centers of the service sphere for both the urban and the rural population, by creating agroindustrial complexes and zones of intensive agricultural production close to the industrial centers, by forming a unified transport system, and in a number of instances also a common utilities infrastructure, all the surviving rural settlements are to be incorporated in the unified group systems of urban and rural settlements.

The development of both industrial and agricultural production in a number of localities with favorable landscape conditions is limited by the development of recreational zones. For the settlements which will have over 1,000 inhabitants in the future, green zones are provided and these have health and recreational functions. Such zones are capable of handling simultaneously up to 30 percent of the residents of the settlements for their brief recreation. In the surroundings of virtually all the cities in the republic, territories have been set aside for gardening cooperatives. Around 10 percent of the republic's area has been reserved for organizing long-term recreation and leisure in the picturesque hilly southeast of Estonia, along the shores of the sea bays and the inland bodies of water. Due to intensive land utilization, a large portion of these territories is to be used not only for recreation but also for other purposes.

All these elements of settlement are to be unified by transport arteries into a single whole in such a manner that a regional center is not more than 4-5 hours away, the centers of the large group systems are no more than 2 hours away, the centers of the medium-sized group systems are 1-1.25 hour, and for the small group systems, 0.75-1 hour.

The regional system for the settlement of Estonia has been carried out at Estgiprosel'stroy [Estonian State Design Institute for Rural Construction], and has been reviewed and approved by the board of the Estonian Gosstroy.

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NEW ZENIT-19 REFLEX CAMERA DESCRIBED

Moscow SOVETSKOYE FOTO in Russian No 8, Aug 79 pp 46-47

[Article by A. Padalko: "The Zenit-19 of the Krasnogorskiy Plant"]

[Text] The Krasnogorskiy Plant Production Association has developed and begun producing the new reflex camera "Zenit-19" (Zenit T1). What advantages does the new development have over the previously produced models of the Zenit system and what are the elements of their continuity? The main new features of the Zenit-19 are the new electronically controlled focal shutter; the continuity is expressed in maintaining the threaded type of lens coupling which is most widely found in our nation.

The shutter (Photo 1) consists of two folding metal-leaf (blade) groups, one of which is used for opening the film gate and the other for closing it. The drive lever of each group moves three leaves in guides which are located along the short side of the film gate.

The titanium strip from which the leaves are made is covered with a durable, anti-friction mat enamel, and has made it possible to stabilize the operating parameters of the shutter within a temperature range from  $-15^{\circ}$  to  $+45^{\circ}$  C, as well as under tropical conditions.

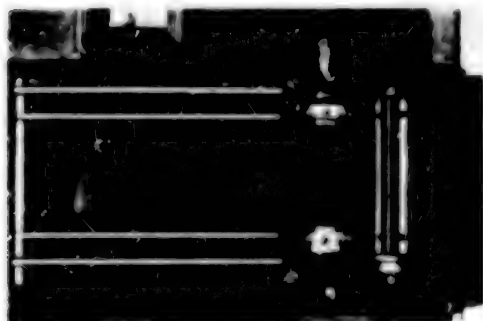


Photo 1

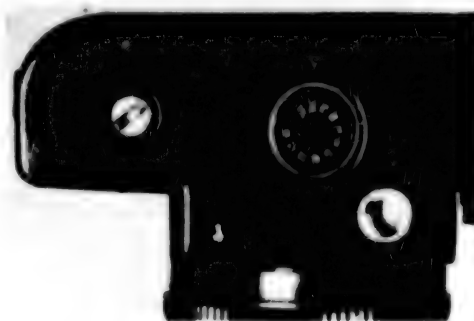


Photo 2

The range of shutter speeds is from 1 to 1/1,000 of a second and "T." The exposure drum is a setting mechanism of an electronic circuit which controls an electromagnet which governs the time lag in releasing the second blade group relative to the first.

For suppressing the vibration which occurs in activating the shutter, there is a spring-friction damping system. The vibration amplitude in the new Zenit model has been reduced by 2-3-fold.

Synchronization with the flash is up to 1/60 of a second. The connection is central and cable contacts.

In design terms the shutter has been made as a separate unit and can be manufactured and repaired separately. The minimum number and simplicity of the connections of the shutter with the camera mean a high level of assembly technology. The realization of new designs, production operations and materials has made it possible for the first time in Soviet practice to develop the output of shutters the precision specifications of which meet first class for photographic equipment.

The most difficult problem has been to achieve stability in the shortest exposures. This means that the tolerable deviation of 1/1,000 of a second is within the limits of from +37 to -28 percent. The repetition rate is  $\pm 10$  percent; the unevenness of exposure over the area of the frame is  $\pm 20$  percent.

The camera is equipped with a light meter using the TTL system. The light meter indicator is an arrow galvanometer. The field of the viewfinder is shown in Fig. 1. The operating range of the light meter is from 0.8 up to 13,000 nits, and in practical terms is around 18 exposure numbers (18 EV). The measuring zone is partially integral with increased sensitivity in the center (the circumference of a large ring) and the lower part of the frame. The sensitivity curve is shown in Fig. 2. The figures designate the relative level of sensitivity. The light meter is activated by a button located under the self-timer lever, and here simultaneously the diaphragm is closed to the proper value.

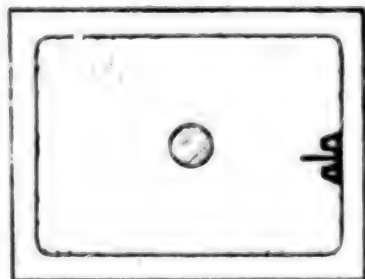


Fig. 1

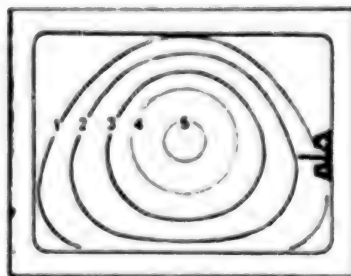


Fig. 2

The electronic control system together with the light meter possesses increased reliability and economy: one loading (two RTs-53 cells) is enough to expose 300-350 films. The location of the power cells and the film sensitivity input are on the underneath side (Photo 2).

It is essential to point out the possibility of operating the shutter with a lack of power. In all positions of the exposure drum, the speed is 1/1,000 of a second. The self-timer has a time lag of 9-14 seconds.

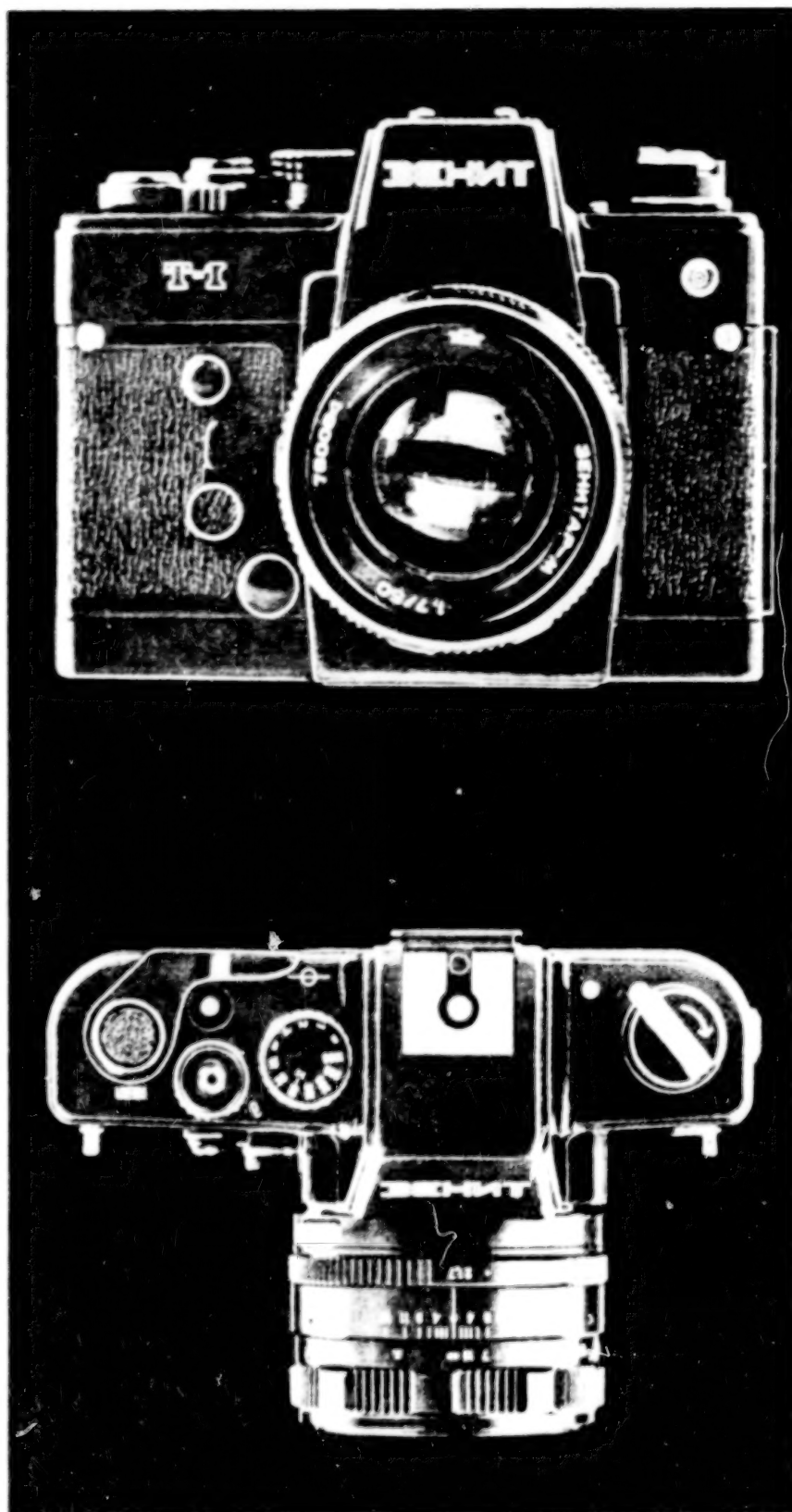
After releasing the self-timer, the release knob must be repushed in order to unlock the camera for resetting.

The visible area of the viewfinder in the Zenit-T1 is 90 percent of the real area of the frame and includes all the remaining elements for fine focusing: a microwedge, a mat ring and a Fresnel lens.

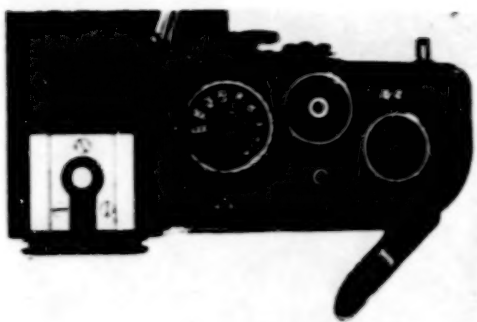
The kinematics of the "jumping" mirror and the "blinking" diaphragm together with the shutter have a record short time lag from the moment of depressing the release button, just 35-40 milliseconds to the moment of beginning the exposure. The effort required to activate the release button has been reduced to 500-700 grams, and its effective stroke has been reduced to 2.5 mm. The camera has acquired modern operating attributes, such as: An automatic frame counter, a "reel" type retractable film rewind knob and a power test knob (Photos 3 and 4). The necessary interlocking is provided: locking against an incomplete reset if the trigger does not return to the initial position; a locking of the release knob with an uncocked shutter, and this protects the power cells against the unproductive consumption of energy; mechanical locking of the knob in two basic positions. The cocking lever has two basic positions: carrying (when it does not protrude beyond the case) and working ("start") when the lever is at an angle of 45-60° in relation to the carrying and is ready for active use (Fig. 3). Here the quickness of photographing is increased, the lever does not get in the way with the wearing of glasses, and makes it possible to sight with the left eye with a normal position of the camera body. The effective cocking angle is just 120°. The thread connection of the M42x1 lenses makes it possible to use a rather broad range of the threaded previously produced Zenit lenses as well as Praktiki, Asahi-Pentax and others. And the "blinking" diaphragms can be used in the previous models of lenses which have an operating slide distance which differs from the requirements of today's standard.

The camera for sale can be equipped with one of two regular lenses: the Zenitar-M or Gelios-44M. The new Zenitar-M lanthanum lens has an initial aperture ratio of 1.7;  $F = 50$  mm; its frequency-contrast performance is also on a modern level: resolution 45-50 lines per mm at the center and 25-30 lines per mm around the edges of the frame.

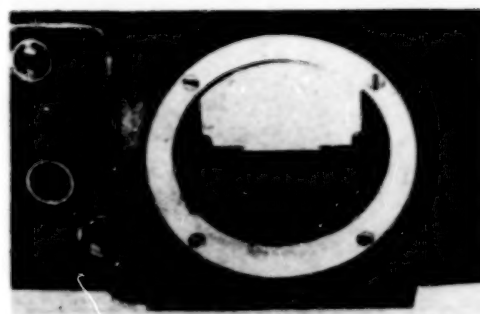
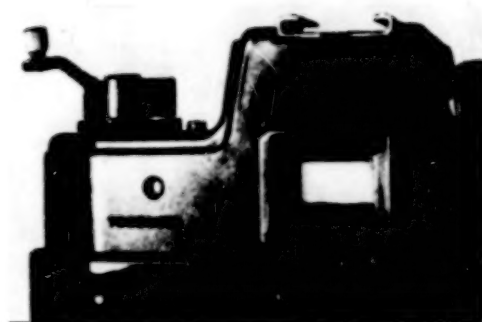
Measures have been taken to reduce light diffusion and the lower inner cover behind the lens has channeling, and the matting of the remaining internal surfaces of the camera has been intensified (Photo 5).







●OTO 3



Due to the introduction of a multi-slit take-in roller, the loading of the film and its holding have become simpler and more reliable. The demands have also been increased upon the accuracy of adjusting the focusing glass the total setting errors of which are limited to a tolerance of  $\pm 0.03$  mm.

The developers have given a great deal of attention to the aesthetic qualities of the camera, and the use of high-strength plastics has made it possible to reduce its weight to 920 gms. The overall dimensions of the camera are: Width 138 mm, height 105 mm, depth with a Zenitar-M lens 100 mm.

Thus, a new Zenit-base model has been developed. Next will be the development of a more complicated model of a new family, a camera with an automatic exposure setting system for the selected diaphragm, a further improvement in the sighting system, a reduction in the level of acoustic noise, the possibility of connecting a motor as well as those numerous refinements which at times seem secondary but over time become essential.

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